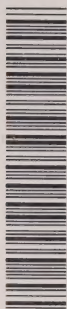


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Directory of Scientific Research and Development Establishments in Canada

Department of Industry, Trade & Commerce
Ottawa, Canada



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Introduction

1969

This Directory of Scientific Research and Development Establishments in Canada has been published by the Department of Industry, Trade and Commerce in response to a growing number of enquiries for information on scientific research and development activities in Canada. It has been compiled from information supplied by 662 organizations in answer to a questionnaire circulated by the Department to about 1700 organizations across Canada in August, 1968.

Establishments are listed in the Directory under four headings: (1) Business Enterprises, (2) Private Non-Profit Organizations, (3) Educational Institutions, and (4) Government Establishments. Where an organization has more than one research and development establishment, they are grouped under the parent organization. Two indices have been included: one listing establishments by province, the other listing the names of senior personnel.

The Directory is intended not only to serve as a record of scientific research and development capabilities and facilities in Canada, but also to help industry, universities, government and others in locating research and development establishments capable of assisting them with their problems and requirements.

**Office of Science and Technology,
Department of Industry, Trade & Commerce,**



Key to Code for Research and Development Activity

Organizations were asked to indicate in their reply to the questionnaire the type and purpose of the research and development activities in which they engage. The symbols used in the Directory to identify these different activities are as follows:

Type of Activity

Basic Research	X
Applied Research	Y
Development	Z

Purpose of Activity

For use of own organization	1
For others on fee or contract basis	2
As a public service free of charge or for educational purposes	3

Examples

- (Y-1, Z-1) indicates that an establishment engages in applied research and development for the use of its own organization.
- (Z-1, Z-2) indicates that an organization engages in development for the use of its own organization and for others on a fee or contract basis.
- (X-3, Y-3) indicates that an organization engages in basic research and applied research as a public service free of charge or for educational purposes.

SCIENTIFIC RESEARCH AND DEVELOPMENT ESTABLISHMENTS IN CANADA
SECTION 1. (1 — 580)
BUSINESS ENTERPRISES

5

1. ABBOTT LABORATORIES LIMITED.

5400 Cote de Liesse Road, Montreal.

H. D. Cook, President.

P. H. Nash, Head of Scientific Division.

RESEARCH DEPARTMENT, (Y-1)

D. L. Garmaise, Manager, Organic Chemical Research.

Professional R & D Staff:

Scientists: Chemistry 10.

Scientific and Product Fields of R & D.
New Therapeutic Agents.

2. ABEX INDUSTRIES OF CANADA LTD., AEROSPACE DIV. (Y-1, Z-1)

3550 Rachel St. E., Montreal, Que.

M. Kistler, General Manager.

J. P. Fullam, V.P. Engineering & Research.

Professional R & D Staff:

Scientists: Chemistry 2; Mathematics 1; Physics 1.

Engineers: Electrical 2; Electronic 1; Mechanical 6; Metallurgical 2.

Scientific and Product Fields of R & D.
Aerospace flight control systems; Aircraft landing gear.

3. ABITIBI PAPER COMPANY LIMITED.

Toronto-Dominion Centre, Toronto 1, Ontario.

T. J. Bell, President.

J. B. Papoe, Vice-President, Research & Engineering.

ABITIBI RESEARCH CENTRE, (X-1, Y-1, Z-1)

Sheridan Park, Ontario.

R. M. Dorland, Director of Technical Development.

Professional R & D Staff:

Scientists: Chemistry 13, Mathematics 2, Physics 1.

Engineers: Chemical 11, Mechanical 5.

Scientific and Product Fields of R & D.
Newsprint, Fine Papers, Building Products (Plywood, Hardboard, Particle Board) Pulp, Corrugating Medium.

4. ABREX SPECIALTY COATINGS LIMITED. (Y-1, Z-1, Y-2)

280 Wyecroft Road, Oakville, Ontario.

G. R. Bailey, President.

F. R. Crowne, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.
Electrocoatings of Organic Paint Coatings and Paint Research.

5. A.E.I. TELECOMMUNICATIONS (CANADA) LIMITED. (Z-1)

419 Notre Dame Avenue, Winnipeg 2, Manitoba.

H. T. Wormell, President.

K. T. Yates, Vice President.

P. W. Hicks, Development Engineering Manager.

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.
Development of telephone switching equipment for the public utilities and private systems.

6. AEROFALL MILLS LIMITED. (X-1, Y-1, Z-1, Y-2, Z-2)

2640 South Sheridan Way, Clarkson, Ontario.

R. C. Meaders, President.

R. R. Turner, Technical Director.

Professional R & D Staff:

Engineers: Chemical 1, Metallurgical 2.

Scientific and Product Fields of R & D.
Particulate Technology (Physical and Chemical Characteristics of Gas-Solid Disperse Systems), Design of Efficient Gas-Solid Classifiers and Equipment for Air Pollution Abatement and New Grinding and Classifying Techniques for Ores and Mineral Dressing.

7. AEROVOX CANADA LIMITED. (X-1, Y-1, Z-1, Z-2)

1551 Barton Street E., Hamilton, Ontario.

J. Cartwright, General Manager.

D. C. Kuenzig, Director Microelectronics.

Professional R & D Staff:

Scientists: Chemistry 1, Physics 2.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.
Thin Film Microelectronics, Passive Networks, Elements and Devices, Active Devices and Networks, Materials for all the above.

8. AERSOL PACKAGING. (X-1, Z-1)

8001 Keele Street, Toronto, P.O. Box 760, Thornhill.

Albert Suk, Director of Chemicals.

Frank Bergson, Director of Pharmaceuticals.

Professional R & D Staff:

Scientists: Chemistry 1, Pharmacy 1.

Scientific and Product Fields of R & D.
Aerosols, Packaging Concepts.

9. AIRCRAFT INDUSTRIES OF CANADA LIMITED. (Z-1, Z-2)

P. O. Box 100, St. Jean, Quebec.

E. S. English, General Manager.

C. H. Skelton, Chief Engineer.

Professional R & D Staff:

Engineers: Aeronautical 1; Struct. 1.

Scientific and Product Fields of R & D.
Developmental work in the use of specific material in aircraft applications.

10. ALBANY FELT COMPANY OF CANADA LIMITED. (Z-1)

Cowansville, Quebec.

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.
Development of filtration fabrics for the paper-making industry.

11. ALCAN RESEARCH AND DEVELOPMENT LIMITED.

1 Place Ville Marie, Montreal, P.Q.

J. F. Horwood, President.

A. E. Edwards, Ph.D., Director of Research.

RESEARCH LABORATORIES (Y-1, Z-1)

Arvida, Que. and Kingston, Ont.

Professional R & D Staff:

Scientists: Chemistry 107, Mathematics 3, Physics 10.

Engineers: Chemical 29, Electrical 4, Forestry 6.

Scientific and Product Fields of R & D.

Research and Development in the aluminum industry on behalf of Alcan Aluminum Limited and its Subsidiaries.

12. ALCECO MACHINE MFG. LIMITED. (Y-1, Z-1)

5005 Cote Vertu, Montreal 384, Quebec.

J. L. Gaug, President.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Applied Research, Metal working machines and Cold Roll Forming of metallic and non metallic materials in sheet, strip, or coil form.

Development: Machines to perform above functions in improved ways and for new materials or processes.

13. THE ALGOMA STEEL CORPORATION, LIMITED. (X-1, Y-1, Z-1)

503 Queen Street East, Sault Ste. Marie, Ontario.

D. S. Holbrook, President.

R. C. Madden, General Manager of Research.

Professional R & D Staff:

Engineers: Metallurgical 10.

Scientific and Product Fields of R & D.

Metals (Iron & Steel), Process development, Product improvement, Product integrity, Raw Materials (including Refractories), By-Product Development.

14. ALLANSON MANUFACTURING CORP. LIMITED.

33 Cranfield Road, Toronto 16, Ontario.

G. R. Jameson, President.

K. A. Stockton, Vice-President.

NEW PRODUCTS DIVISION (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 2.

Scientific and Product Fields of R & D.

Distribution Transformer and related product field.

15. ALLIED FARM EQUIPMENT, WINNIPEG MFG. DIV. (Z-1)

50 Panet Road, St. Boniface, Manitoba.

H. R. Malmgren, Mgr. Product Engineering & Development.

Professional R & D Staff:

Engineers: Mechanical 3; Agricultural 1.

Scientific and Product Fields of R & D.

Agricultural Machinery & Equipment.

16. ALMA PAINT & VARNISH COMPANY LIMITED. (X-1, Y-1, Z-1)

65 Duke Street, London, Ontario.

T. Wolf, President.

S. L. Mole, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

Protective Coatings, Basic Resins, Methods for protective coating application.

17. AMPLITROL ELECTRONICS LIMITED.

51 Marie Victoria, Candiac, Quebec.

W. Ghilboard, General Manager.

W. Sporschill, Engineer.

ENGINEERING DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Acoustics, Electronics, Burglar Alarm, Intercom Systems.

18. ANACONDA AMERICAN BRASS LIMITED.

260 Eighth Street, Toronto 14, Ontario.

D. F. Cornish, President.

GEOLOGICAL RESEARCH LABORATORY (X-1)

Britannia Beach, B.C.

C. J. Hodgson, Research Director.

Professional R & D Staff:

Scientists: Geology & Other Earth Sciences 2.

Scientific and Product Fields of R & D.

Geological Research.

19. ANDREW ANTENNA COMPANY LIMITED. (Y-1, Z-1, Z-2)

606 Beech Street, Whitby, Ontario.

R. P. Matthews, Vice-President & General Manager.

H. J. Swain, Chief Electrical Engineer.

Professional R & D Staff:

Engineers: Electronic 4, Mechanical 2.

Scientific and Product Fields of R & D.

Antennas & Accessories, Antenna Support Masts, Transmission lines (Coaxial and Waveguide) R. F. Filters.

20. ANGELSTONE LIMITED. (Y-1, Z-1)

Preston, Ontario.

E. B. Ratcliffe, President.

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Stone Manufacturer (Process Sandstone) Marble Quarrying.

21. ANGLO-CANADIAN PULP & PAPER MILLS LIMITED.

P.O. Box 1487, Quebec, P.Q.

W. E. Soles, President.

K. C. Logan, Director of R & D.

R & D Department (Y-1, Z-1, Y-2, Z-2)

P.O. Box 1456, Quebec, P.Q.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: Chemical 6.

Scientific and Product Fields of R & D.

Pulp & Paper Process and Product Development Industrial Inorganic Chemicals.

22. ANIMAL BREEDING CONSULTANTS LIMITED. (Y-2, Z-2)

10 Eton Place, Guelph, Ontario.

R. W. C. Stevens, President.

Professional R & D Staff:

Scientists: Agriculture 3.

Scientific and Product Fields of R & D.

For the improvement of beef cattle and domestic turkeys.

23. ANTHES EASTERN LIMITED INCLUDING JOHN WOOD CO. LTD.

101 Hanson Street, Toronto 13, Ontario.

B. E. Judges.

F. T. Taylor, Chief Engineer.

ENGINEERING LABORATORY (Z-1)

Professional R & D Staff:

Engineers: Mechanical 4.

Scientific and Product Fields of R & D.

Water heaters, furnaces, oil burners, Construction heaters, Fluid injectors and ejectors, and gasoline dispensers.

24. ANTHES WESTERN LIMITED. (Z-1)

1550 Dublin Avenue, Winnipeg 21, Manitoba.

W. A. Farnell, Vice President and General Manager.

M. C. Roland, Supervisor, Farm Equipment Development.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Farm Equipment.

25. ASBESTOS CORPORATION LIMITED.

257 Notre Dame Street South, Thetford Mines, P.Q.

W. W. Oughtred, President & Chief Executive Officer.

P. H. Riordon, Vice-President & General Manager.

PRODUCT RESEARCH & DEVELOPMENT DEPARTMENT

(X-1, Y-1, Z-1)

Operations Office, 928 Mooney St., Thetford Mines, P.Q.

G. F. A. Brink, P.R.&D. Manager.

Professional R & D Staff:

Scientists: Physics, Math. & Chemistry 1.

Engineers: Metallurgical 1, Mining 2.

Scientific and Product Fields of R & D.

Asbestos and associated minerals, milling equipment and ore processing methods, test methods and new asbestos products and uses.

26. ASHTON PRESS MFG. CO. LTD. (Z-1)

10210 Pie IX Blvd., Montreal North 39, Quebec.

J. R. Hutton, President.

H. G. Farish, Supervisor Design Engineering.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Development of Printing Presses and Allied Equipment.

27. ASTRA PHARMACEUTICALS (CANADA) LTD.

1004 Middlegate Road, Cooksville, Ont.

Björn Leyner, President.

RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1)

Allard Edhorn, Chief Chemist.

Professional R & D Staff:

Scientists: Pharmacy 1.

Scientific and Product Fields of R & D.

Local Anesthetic Field.

28. ATCO INDUSTRIES LIMITED.

1243 - 48 Ave. N.E., Calgary 67, Alberta.

R. D. Souther, President & Chief Executive Officer.

J. D. Wood, Senior Vice President.

ATCO RESEARCH & DEVELOPMENT CENTER (Y-1, Z-1, Y-2, Z-2)

50 Ave. & 24 St. S.W., Calgary 10, Alberta.

J. Susnir, General Manager.

Professional R & D Staff:

Engineers: Mechanical 12, Aeronautical 5, Chemical 1, Civil 6, Electrical 2.

Scientific and Product Fields of R & D.

New and improved industrialized structures e.g. light weight air transportable structures and Community Structures.

29. ATLAS HOIST & BODY INC. (Y-1)

7660 Cote de Liesse Road, Montreal 9, Que.

Max M. Richler, Vice-President.

Frank Hoernig, Works Manager.

Professional R & D Staff:

Engineers: Aeronautical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Hydraulic cylinders and Bodies for trucks and Trailers and Welding procedures.

30. ATLAS STEELS COMPANY.

Centre Street, Welland, Ontario.

O. S. Leslie, President.

R. H. Read, Manager, Quality Control and Metallurgy.

RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1)

Brownleigh Avenue, Welland, Ontario.

D. J. Knight, Manager, Research & Development.

Professional R & D Staff:

Engineers: Metallurgical 14.

Scientific and Product Fields of R & D.

Stainless Steels, Tool Steels, Mining Steels, High Strength-low Alloy Steels, Concasting Process, Machinability Studies and Thermal Fatigue Studies.

31. AUTOMATEC INCORPORATED. (Z-1, Z-2)
117 West Lagachetiere Street, Montreal 1, P.Q.
R. Borduas, Managing Director.
J. Vallance, Technical Director.

Professional R & D Staff:
Engineers: Electronic 2, Mechanical 1.

Scientific and Product Fields of R & D.
Electronic system for sorting operations and machinery with mechanical and electronic implements for controlling or manufacturing operations.

32. AUTOMATIC ELECTRIC (CANADA) LIMITED.
100 Strowger Blvd., Brockville, Ontario.
C. R. Hughes, President.
W. W. Ashworth, Engineering Manager.
RESEARCH & DEVELOPMENT LABORATORY, (Y-1, Z-1)
R. W. Duthie.

Professional R & D Staff:
Engineers: Electronic 9, Mechanical 1.

Scientific and Product Fields of R & D.
Electronic and Electromechanical Telecommunications Switching Equipment Development and Telecommunications Traffic Theory.

33. AVIATION ELECTRIC LIMITED. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)
200 Laurentian Blvd., St. Laurent, Montreal 9, P.Q.
A. Bandi, Chairman of the Board.
A. E. Maine, Director of Engineering.

Professional R & D Staff:
Scientists: Mechanics 1.
Engineers: Mechanical 6, Electronic 6.

Scientific and Product Fields of R & D.
Electronic and Electromechanical Instrumentation, Fluidics Research and Development, Electromechanical Instrumentation, Fluidic Research and Instrumentation, Electronic Instrumentation, Heading References (magnetic) and High-G Optical Sensors and Control Systems.

34. AVMOR LIMITED.
433 St. Helen Street, Montreal, Quebec.
A. Morrow, President.
G. Tinker, Director of Research.
AVMOR LIMITED LABORATORY, (Z-1)

Professional R & D Staff:
Scientists: Chemistry 2.

Scientific and Product Fields of R & D.
Ester Interchange, Emulsion Polymerization and Sulphonation of Alkates.

35. AYERST LABORATORIES.
P.O. Box 6115, Montreal, Quebec.
E. G. Gregory.
D. A. Buyske, Director of Research.
AYERST RESEARCH LABORATORIES (X-1, Y-1, Z-1)

Professional R & D Staff:
Scientists: Biology 38, Chemistry and Biochemistry 80, Microbiology 14.

Scientific and Product Fields of R & D.
Research on discovery of new drugs, pharmaceuticals and biologically active products.

36. BACH-SIMPSON LIMITED.
1255 Brydges Street, London, Ontario.
R. Wilton, President.
G. R. Hosker, Chief of Research.
RESEARCH DEPARTMENT (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:
Scientists: Physics 1.
Engineers: Electrical 1, Electronic 1.

Scientific and Product Fields of R & D.
Electromagnetics and Electromechanisms, Electrooptics, Electrical, Electronic Measurements, Measuring Instrument, Systems and Transducers, Digital Systems and Optical Encoders and Electrical/Electronic Control Instruments and Systems.

37. BAPCO PAINT LIMITED. (Y-1, Z-1)
201 Belleville Street, Victoria, B.C.
D. R. Fraser, President.
M. A. Allen, Planning Manager.

Professional R & D Staff:
Scientists: Chemistry 3.

Scientific and Product Fields of R & D.
Applied research on paints and varnishes for a specific practical application and development of paints and varnishes to improve existing products and processes.

38. BARRINGER RESEARCH LIMITED.
304 Carlingview Drive, Rexdale, Ont.
A. R. Barringer.
A. R. Barringer.

38A. COMMERCIAL PRODUCTS DIVISION. (Z-1)
W. H. Seeley, General Manager.

Professional R & D Staff:
Engineers: Chemical 1, Electrical 1 and Mechanical 1.

Scientific and Product Fields of R & D.
Remote sensing for exploration and air pollution monitoring utilizing electromagnetic, magnetometric and spectroscopic techniques.

38B. RESEARCH & DEVELOPMENT DIV. (Y-1, Z-1, Y-2, Z-2)

Joseph Macdowall, General Manager, Research & Development.

Professional R & D Staff:

Scientists: Chemistry 3, Geology & other Earth Sciences 1, Mathematics 1 and Physics 3.

Engineers: Electronic 4, Mechanical 1 and Mining 2.

Scientific and Product Fields of R & D.

The development of instruments and techniques for earth resources survey and the environmental sciences.

39. BASIC HYDRAULICS & INDUSTRIAL EQUIPMENT LTD. (Y-1, Z-1)

Hwy. 58, Box 423, Welland, Ontario.

E. J. DeWaard, President.

J. G. Don, Manager, Hydraulics Engineering.

Professional R & D Staff:

Engineers: Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.

Hydraulic lift towers for industrial use, plus related apparatus for use in the forestry, agriculture and fire-fighting field.

40. BATA SHOE COMPANY OF CANADA LIMITED.

Batawa, Ontario.

G. W. Lawrence, General Manager.

BATA ENGINEERING DIVISION (Y-1, Z-1)

D. R. Stemp, Manager Engineering Services.

Professional R & D Staff:

Engineers: Mechanical 5.

Scientific and Product Fields of R & D.

Development of machinery for the footwear industry.

41. THE B.C. SUGAR REFINING COMPANY LIMITED. (X-1, Y-1, Z-1)

P.O. Box 2150, Vancouver, B.C.

F. Rogers, President.

A. P. Neilson, Manager, Research and Development.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 1, Chemistry 2.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Food Products, Agricultural Science and Chemistry.

42. BEACONING OPTICAL & PRECISION MATERIALS CO. LTD.

455 Craig Street West, Montreal 126, Quebec.

J. A. Benard, President.

Z. A. Krajewski, Chief Electronics Engineer.

ENGINEERING DEPARTMENT (Y-1, Z-1, Z-2)

555 Blvd. Boivin, Granby, Quebec.

Professional R & D Staff:

Engineers: Electronic 7, Mechanical 2.

Scientific and Product Fields of R & D.

VLF, LF, HF, VHF and UHF Radio Direction Finding Systems.

43. BECKER DRILLING (ALBERTA) LIMITED. (Z-1)

555 Bentall Building, 444 - 7th Avenue S.W., Calgary, Alta.

G. O. Loach.

A. E. Vollendorf.

Professional R & D Staff:

Engineers: Civil 1.

Scientific and Product Fields of R & D.

Exploration Drilling, primarily in Mining and Offshore, and Industrial Drilling, all types of Construction work (Anchors, Piles, and Wells, etc.)

44. A. BELANGER LIMITED.

10 St. Jean Baptist Street East, Montmagny, Quebec.

T. Z. St. Laurent, President and General Manager.

G. Caouette, Manager of Engineering Dept.

PRODUCT DEVELOPMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Domestic refrigerators and freezers (electric) and Domestic electric cookers and Oil radiators.

45. BELL CANADA.

1050 Beaver Hall Hill, Montreal, P.Q.

R. C. Scrivener, President.

A. G. Lester, Exec. VP, Planning & Research.

ENGINEERING DESIGN DEPT., PLANNING AND RESEARCH (Z-1)

620 Belmont Street, Montreal, P.Q.

J. S. Kyles, Director of Engrg. Design.

Professional R & D Staff:

Engineers: Civil 11, Electrical 61, Mechanical 4 and Other 7.

Scientific and Product Fields of R & D.

R & D in telecommunications field.

46. BENCO TELEVISION ASSOCIATES.

27 Taber Road, Rexdale, Ontario.

T. A. Cross, President.

J. Cappon, Chief Engineer.

ENGINEERING LABORATORY (Z-1)

Professional R & D Staff:

Engineers: Electronic 4.

Scientific and Product Fields of R & D.

Low Distortion Broad-Band Amplifiers, Selective Amplifiers, and Low-Noise Amplifiers.

47. BENSON & HEDGES (CANADA) LIMITED.

1010 Lagauchetiere Street, West, Montreal, Que.

A. Toledo, President.

W. C. Smith, Technical Research Manager.

BENSON & HEDGES RESEARCH DEPARTMENT (Y-1, Z-1)

5555 Royalmount Avenue, Montreal, Que.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Physical Chemistry, Analytical Chemistry, Aerosols in Smoke, Filtration Processes and Physical and Chemical Properties of Tobacco.

48. BETHLEHEM COPPER CORPORATION LTD.

Room 1618, 355 Burrard St., Vancouver 1, B.C.

P. M. Reynolds, President and Managing Director.

MINING METALLURGICAL LABORATORY (Y-1, Z-1, Y-2, Z-2)

Box 520, Ashcroft, B.C.

E. A. Lowe, Chief Metallurgist.

Professional R & D Staff:

Engineers: Metallurgical 1.

Scientific and Product Fields of R & D.

Extractive Metallurgy — Treatment or processing of raw mine Ore for production of metal or mineral concentrates.

49. BINGHAM PUMP COMPANY, LIMITED. (Y-1, Z-1)

4129 Lozells Avenue, Burnaby 2, B.C.

R. N. Bowman, President.

R. Bendall.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Multifuges (Oil, Water and Air Separators).

50. BIO-SCIENCE LABORATORY. (Y-1, Z-1, Y-2, Z-2)

343 Tache Ave., St. Boniface 6, Manitoba.

J. S. Greff, Biochemist.

R. E. Dempster, Biochemist.

Professional R & D Staff:

Scientists: Biology 2, Chemistry 2, Medicine & Dentistry 2.

Engineers: Chemical 1, Food 1.

Scientific and Product Fields of R & D.

Quality control analysis, Animal feed control and new formula development. Bacteriology control and prevention.

51. H. L. BLACHFORD LIMITED.

977 Aqueduct Street, Montreal 3, P.Q.

H. L. Blachford, President.

K. S. Buxton, Chief Chemist.

MONTREAL LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Metallic Soaps, Barium, Calcium, Lead, Magnesium, Aluminum Zinc Stearates, Corrosion Resistant Cements and Coatings, Epoxy, Polyester, Phenolic and Vibration Damping Materials.

52. THE BOBTEx CORPORATION LIMITED. (X-1, Y-1, Z-1)

1435 St. Alexander Street, Suite 310, Montreal, P.Q.

E. Bobkowicz, Vice President Research & Development.

Professional R & D Staff:

Scientists: Physics 2, Economics 1.

Engineers: Electrical 1, Chemical 1, Mechanical 3, Textile 1.

Scientific and Product Fields of R & D.

Textile Science, Yarn Producing Equipment, Yarn Manufacturing Process Development, Textile Fibre behaviour in Yarn Structures and Polymer Science.

53. EMILIAN BOBKOWICZ LIMITED. (Y-1, Z-1)

1435 St. Alexander Street, Suite 310, Montreal, P.Q.

E. Bobkowicz, President.

A. J. Bobkowicz, Vice President Research & Development.

Professional R & D Staff:

Scientists: Economics 1.

Engineers: Mechanical 1, Chemical 1.

Scientific and Product Fields of R & D.

Nonwoven Fabrics Equipment and Technology, Fabric Technology and Textile Science.

54. BOMBARDIER LIMITED.

Valcourt, P.Q.

G. Bissonnette, Managing Director.

RESEARCH AND EXPERIMENTAL CENTRE (Y-1, Z-1)

Professional R & D Staff:

Engineers: Mechanical 10.

Scientific and Product Fields of R & D.

Snowmobiles and cross-country tractors.

55. THE BORDEN CHEMICAL CO. CANADA LTD.

Box 610, 595 Coronation Dr., West Hill, Ont.

Gerald J. Ray, President.

T. Larson, Technical Director.

RESEARCH & DEVELOPMENT LAB. (Y-1, Z-1)

J. S. Woodhead, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 6.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Chemicals.

56. BOWMAR CANADA LIMITED.

P.O. Box 4076, Station "E", River Rideau Rd., Ottawa, Ont.

W. R. Ratcliffe, Vice-President Marketing.

R. D. Rinehart, Vice-President Operations.

M. J. Russ, Director of Research & Develop.

56A. RESEARCH & DEVELOPMENT DEPT. (Y-1, Z-1, X-2, Y-2, Z-2)*Professional R & D Staff:*

Scientists: Chemistry 1 and Physics 3.

Scientific and Product Fields of R & D.

Solid-state physics — Light Emitting Semiconductors for use in electronic displays.

56B. ROTATING COMPONENT DEPARTMENT. (Z-1, Z-2)

Box 4076, Station "E", Ottawa, Ont.

R. Goodchild, Chief Engineer.

Professional R & D Staff:
Engineers: Electrical 1.*Scientific and Product Fields of R & D.*
Synchros & resolvers, Servomotors, Stepper Motors, Gearheads, brakes & clutches and Modules embodying above components.**57. THE BRANTFORD CORDAGE COMPANY. (Y-1, Z-1)**

96 Sherwood Drive, Brantford, Ontario.

A. M. James, President.

J. Kurck, Manager, Research & Development.

Professional R & D Staff:
Engineers: Chemical 1.*Scientific and Product Fields of R & D.*
Rope, twine and other applications of polyolefins.**58. T. G. BRIGHT & CO. LIMITED. (Z-1)**

P.O. Box 510, Niagara Falls, Ontario.

W. D. Hatch, President.

A. S. Mervin, Director of Research.

Professional R & D Staff:
Scientists: Agriculture 7.*Scientific and Product Fields of R & D.*
Wine.**59. BRISTOL AEROSPACE LIMITED. (Y-1, Z-1)**

Winnipeg, P.O. Box 874.

W. M. Auld, President.

C. M. Hovey, Director of Engineering & Quality Control.

Professional R & D Staff:

Engineers: Aeronautical 2, Civil 1, Electrical 4, Mechanical 19, Metallurgical 2, Electronic 12.

Scientific and Product Fields of R & D.
Sounding Rockets (Solid propellant) Telemetry related to above, Materials — high temperature, high strength nuclear, g.r.p., Materials processing — forming, welding, heat treatment and Development of Nuclear fuel channels.**60. BRISTOL LABORATORIES OF CANADA LIMITED. (X-1, Y-1)**

100 Industrial Blvd., Candiac, P.Q.

E. R. Rowe, President.

Y. G. Perron, Director of Laboratories.

Professional R & D Staff:

Scientists: Chemistry 20, Pharmacology 5.

Scientific and Product Fields of R & D.
Organic Chemistry Pharmacology and Pharmaceuticals.**61. THE BRITISH AMERICAN CHEMICAL COMPANY LIMITED. (Z-1, Z-2)**

8321 Willard, Burnaby 3, B.C.

R. E. Johnston, President.

S. R. Price, Chemical Engineer.

G. Muehlchen, Chemist.

Professional R & D Staff:

Scientists: Agriculture 2, Chemistry 2, Pharmacy 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Industrial Research, Water Treatment, Pollution and Air Conditioning.**62. THE BRITISH AMERICAN OIL COMPANY LIMITED.**

800 Bay Street, Toronto 5, Ontario.

Chas. Hay.

R. O. Campbell, Manager, Research & Development.

62A. BRITISH AMERICAN RESEARCH AND DEVELOPMENT COMPANY.

(X-1, Y-1, Z-1, Y-2, Y-3)

2489 North Sheridan Way, Sheridan Park, Ont.

Professional R & D Staff:

Scientists: Chemistry 49 and Physics 1.

Engineers: Chemical 15, Electronic 1, Mechanical 4 and Metallurgical 1.

Scientific and Product Fields of R & D.
Petroleum Products, Petrochemicals and Chemicals, Specialty Products, Analytical Chemistry, Physical Chemistry, Mathematics, and Physics.**62B. RESEARCH GEOLOGY. (Y-1, Z-1)**

P.O. Box 130, Calgary 2, Alberta.

A. D. Baillie, Director, Research Geology.

Professional R & D Staff:

Scientists: Geology & Other Earth Sciences 10.

Scientific and Product Fields of R & D.
Petrography, mineralogy, sedimentology, micropaleontology, stratigraphy, well log analysis, subsurface fluids, exploration data processing and closely related fields.**63. BRITISH COLUMBIA PACKERS LIMITED.**

Ft. Campbell Avenue, Vancouver, B.C.

J. N. Hyland, Chairman and Chief Executive Officer.

D. Townsley, Manager, Quality Control.

IMPERIAL PLANT (Z-1)

Steveston, B.C.

Professional R & D Staff:

Scientists: Agriculture 1.

Scientific and Product Fields of R & D.
Responsible for maintaining the quality of fish products and the development of new fish products.

64. THE BRITISH DRUG HOUSES (CANADA) LIMITED. (Y-1, Z-1)

Barclay Avenue, Toronto 18, Ontario.

F. J. Burke, Managing Director.

V. Chivers-Wilson, Director - New Product Development.

Professional R & D Staff:

Scientists: Medicine & Dentistry 1, Pharmacy 2, Bacteriology 1.

Scientific and Product Fields of R & D.

Pharmacology, Microbiology and Analytical development.

65. BRUNETTE MACHINE WORKS LIMITED. (Z-1, Z-2)

149 Nelson Street, New Westminster, B.C.

H. G. Pousette, President.

R. D. Pousette, Vice-President.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Machinery as related to Forest Industry.

66. BRUNSWICK OF CANADA LIMITED.

1156 Dundas Hwy. East, Cooksville, Ontario.

T. J. Ryan, Vice-President Manufacturing.

J. Lee, Project Engineer.

PLASTIC LAMINATE PROCESS DEPT. (Z-1)*Professional R & D Staff:*

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Fibreglass/wood laminate process, Lacrosse sticks and Hockey sticks.

67. BTI PRODUCTS LIMITED.

100 Industrial Boulevard, Candiac, Quebec.

R. D. Garon, President.

T. J. Henderson.

BTI PRODUCTS LIMITED PRODUCT DEVELOPMENT DEPT. (Z-1)

1 Wilton Grove Road, London, Ontario.

J. Soucy, Product Development Manager.

Professional R & D Staff:

Scientists: Pharmacy 1, Veterinary Medicine 1.

Scientific and Product Fields of R & D.

Pharmaceutical Products.

68. BUILDING PRODUCTS OF CANADA LIMITED.

P.O. Box 6063, Montreal, Que.

J. E. Mitcham.

BUILDING PRODUCTS OF CANADA LIMITED (Y-1, Z-1)

RESEARCH CENTRE

240 St. Patrick St., LaSalle, Que.

S. A. McIntosh, Manager, Research & Development.

Professional R & D Staff:

Scientists: Chemistry 7.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Wood Fiber Products, Resilient Flooring, Building Materials.

69. BURNDY CANADA LTD. (Y-1, Z-1, Y-2, Z-2)

1530 Birchmount Rd., Scarborough, Ontario.

F. H. McLenaghan, President.

S. P. Holder, Vice-President.

Professional R & D Staff:

Engineers: Electrical 3, Electronic 1, Mechanical 3 and Metallurgical 1.

Scientific and Product Fields of R & D.

Control of vibration and motion in single and multi-conductor power transmission lines at all voltage levels and design of electrical connectors for power stations which operate at extra high voltages.

70. CAE INDUSTRIES LTD.

Suite 1927, Place Ville Marie, Montreal, P.Q.

C. D. Reekie, President.

ELECTRONICS DIVISION, RESEARCH AND DEVELOPMENT

(Y-1, Z-1, Y-2, Z-2)

380 Montée De Liesse Road, Montreal, P.Q.

J. W. Bell, Vice-President, Research and Development.

Professional R & D Staff:

Scientists: Mathematics 5, Physics 5.

Engineers: Aeronautical 3, Electrical 29 and Mechanical 5.

Scientific and Product Fields of R & D.

Aircraft Flight Simulators, Visual Simulators, Magnetic Anomaly Detection Equipment, Digital Supervisory and Control Systems, Digital Data Processing Equipment, Weather Satellite Receiving and Processing Equipment and Miscellaneous Electronic Devices and Tactical Simulators.

71. CAMPBELL CHIBOUGAMAU MINES LTD. (Y-1, Z-1)

Box 3400, Chibougamau, P.Q.

J. N. Blinkoff, Chairman of the Board of Directors and Chief Executive Officer.

K. C. Wilson, Mining Engineer, General Manager - Mines.

Professional R & D Staff:

Engineers: Metallurgical 1.

Scientific and Product Fields of R & D.

Metallurgy - as pertaining to milling.

72. CAMPBELL MANUFACTURING CO. LTD. (Y-1, Z-1, Y-2, Z-2)

45 Sheppard Ave. E., Willowdale, Ont.

B. J. Moriarty, General Manager.

J. A. Rutherford, Works Manager.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

In the fields of Chemistry and Production Processing, research and development is performed for the production of rubber and golf equipment.

73. CAMPBELL SOUP COMPANY LTD.

60 Birmingham St., Toronto 14, Ont.

J. M. Lindley, Vice-President - General Manager.

J. F. Moore, Manager, Agricultural Research.

73A. AGRICULTURAL RESEARCH LABORATORY. (X-1, Y-1, Z-1)

Hwy. #10 South of MacDonald Cartier Freeway, Brittania,
Peel County, Ont.

Professional R & D Staff:
Scientists: Agriculture 4.

Scientific and Product Fields of R & D.
Agricultural Research, Plant Breeding Studies, Herbicides, Fertilizers and Pesticides.

73B. AGRICULTURAL RESEARCH DEPT. (X-1, Y-1, Z-1)

Portage la Prairie, Manitoba.

R. C. Henne, Supervisor - Agricultural Research.

Professional R & D Staff:
Scientists: Agriculture 1.

Scientific and Product Fields of R & D.
Agricultural Research, Plant Breeding Studies, Herbicides, Fertilizers and Pesticides.

74. CANADA BREAD COMPANY LIMITED.

21 Vincent Street, Toronto, Ontario.
N. T. Currie.

Professional R & D Staff:
Scientists: Chemistry 2 and Home Econ. 1.

CENTRAL LABORATORIES (Y-1, Z-1)

171 Bermondsey Road, Toronto 16, Ont.

Cornelis Kortschot, Director - Product Development.

Scientific and Product Fields of R & D.
Food Technology.

75. CANADA BRICK COMPANY.

Box 668, Streetsville, Ontario.

E. Y. Carlson, President & General Manager.

C. J. Narde, Development & Control Engineer.

DEVELOPMENT AND CONTROL LABORATORY (Y-1, Z-1)

Professional R & D Staff:
Engineers: Ceramic 1.

Scientific and Product Fields of R & D.
To develop new products pertaining to brick manufacturing, to investigate masonry components associated with clay masonry construction systems and to investigate and develop new methods and processes for manufacturing clay masonry units.

76. CANADA CEMENT COMPANY, LIMITED.

P.O. Box 490, Station B, Montreal 110, Que.

J. Taylor Kennedy.

W. S. Weaver, Manager of Research and Quality Control.

RESEARCH LABORATORY (Y-1, Z-1)

Point Ann (Belleville) Ont.

P. S. Grindrod, Research Chemist.

Professional R & D Staff:
Scientists: Chemistry 2.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Studies of fineness, surface area and particle size and shape in the manufacture and performance of Portland cement and stabilization of mine tailings with Portland cement.

77. CANADA & DOMINION SUGAR CO. LTD.

1720 du Canal Street, Montreal 3, Que.

S. Tate.

S. Stachenko.

R & D DIVISION (Y-1, Z-1, Z-2)

1410 Montmorency St., Montreal 3, Que.

S. Stachenko, Head of Research and Development.

Professional R & D Staff:
Scientists: Chemistry 3.
Engineers: Chemical 2.

Scientific and Product Fields of R & D.
Carbohydrate chemistry, sugar refining, food products containing sugar and new products unrelated to sugar.

78. CANADA DRY LIMITED. (X-1, Z-1)

2 Champagne Drive, Downsview, Ontario.

N. L. Bosworth, President.

J. W. Stinson, Product Control Manager.

Professional R & D Staff:
Engineers: Chemical 1, Civil 1.

Scientific and Product Fields of R & D.
Existing and new products development.

79. CANADA GLAZED PAPERS LIMITED.

2131 Lawrence Ave. E., Scarborough, Ont.

L. G. Rollard, Chairman.

J. A. Pinder, Director Research and Development.

RESEARCH AND DEVELOPMENT DEPT. (Y-1, Z-1)

Professional R & D Staff:
Scientists: Chemistry 3.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Coated papers for printing, copying and functional uses and Polymer - pigment composites.

80. CANADA MALTING CO., LIMITED.

1 Bathurst St., Toronto, Ont.

H. F. Graesser, President.

D. W. Sparrow.

LABORATORIES (Y-1)

622 Fleet Street, Toronto, Ont.

Professional R & D Staff:
Scientists: Agriculture 2.

Scientific and Product Fields of R & D.
Improved malting techniques and new products.

81. CANADA PACKERS LIMITED.

95 St. Clair Ave. W., Toronto 7, Ont.

W. F. McLean, President.

G. F. Clark, Vice-President.

RESEARCH & DEVELOPMENT LABS. (X-1, Y-1, Z-1)

2211 St. Clair Ave. W., Toronto 9, Ont.

Leon J. Rubin, Director of Research and Development.

Professional R & D Staff:
Scientists: Agriculture 3, Biology 2, Chemistry 19 and Lib. 1.
Engineers: Electronic 1 and Food 3.

Scientific and Product Fields of R & D.
Research and development is performed in the fields of meat and meat products, edible oils, animal feeds, leather, pharmaceutical and veterinary products.

82. CANADAIR LIMITED. (Y-1, Z-1, Y-2, Z-2)

P.O. Box 6087, Montreal, Quebec.

F. R. Kearns, President.

E. H. Higgins, Vice-President Engineering.

R. J. Ross, Director Research and Development.

Professional R & D Staff:

Scientists: Chemistry 2 and Physics 20.

Engineers: Aeronautical 33, Chemical 16, Civil 2, Electrical 31, Mechanical 55, Metallurgical 9 and Other 10.

Scientific and Product Fields of R & D.

Aircraft, drones, missiles, communication satellites, articulated track vehicles and associated systems and support.

83. CANADIAN ADMIRAL CORPORATION, LTD. (Z-1)

501 Lakeshore Rd. E., Port Credit, Ont.

S. D. Brownlee, President.

L. Irvine, Radiation Detection Equip.

F. Solmsen, Home Entertainment Appliances.

J. Ferguson, Household Appliances.

Professional R & D Staff:

Engineers: Electrical 3 and Electronic 1.

Scientific and Product Fields of R & D.

Radiation Detection equipment, Home entertainment appliances and other household appliances.

84. CANADIAN ALLIS-CHALMERS LIMITED.

125 St. Joseph Street, Lachine, Quebec.

Boyd S. Oberlink, President.

J. E. deSouza, Manager of Research.

RESEARCH AND DEVELOPMENT DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Aeronautical 1 and Chemical 1.

Scientific and Product Fields of R & D.

Fuel Cell for military applications.

85. CANADIAN BREWERIES LTD.

79 St. Clair Ave. E., Toronto 7, Ont.

J. G. Campbell, President.

O. O. Schaus.

CANADIAN BREWERIES RESEARCH LABORATORIES

(X-1, Y-1, Z-1)

369 Lakeshore Blvd. E., Toronto 2, Ont.

O. O. Schaus, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 15.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

Malt beverages, malt and brewery by-products.

86. CANADIAN BRONZE COMPANY LIMITED. (Y-1, Z-1)

999 Delorimier Avenue, Montreal, Quebec.

A. J. Moore, President and General Manager.

J. W. Collinson, Chief Metallurgist.

Professional R & D Staff:

Engineers: Metallurgical 2.

Scientific and Product Fields of R & D.

Development of casting techniques in high purity copper base alloys.

87. CANADIAN BRONZE POWDER WORKS LIMITED. (Y-1, Z-1)

29 East Park, Valleyfield, Que.

J. H. Ferrie, President.

D. S. Jackson, Vice-Pres., Research & Development.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Improvement and adaptation of metallic pigments in the paint, plastics, and explosive industries and improved manufacturing techniques in order to augment productivity of flake metal powder processing.

88. CANADIAN BUTTONS LIMITED. (Z-1)

7020 Allard Street, LaSalle, Quebec.

T. Goldman, President.

P. H. Frankel.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Plastics.

89. CANADIAN CANNERS LIMITED.

44 Hughson Street South, Hamilton, Ontario.

L. H. Johnston, President.

C. J. Ross, Scientific Research Manager.

SCIENTIFIC RESEARCH (Y-1, Z-1)

19 Jackson Street East, Hamilton, Ontario.

Professional R & D Staff:

Scientists: Agriculture 2, Chemistry 7, Microbiology 3.

Scientific and Product Fields of R & D.

Product Research and Investigation of new manufacturing processes, Agricultural Research, Container Research, Waste Water Research and Pesticide Research.

90. CANADIAN CHROMALOX COMPANY, DIVISION OF CANADIAN CORPORATE MANAGEMENT LIMITED.

210 Rexdale Blvd., Rexdale, Ontario.

V. N. Stock, President.

D. Patterson, Chief Engineer.

ENGINEERING DEPARTMENT (Z-1)

Professional R & D Staff:

Engineers: Electrical 3, Mechanical 3.

Scientific and Product Fields of R & D.

Electric Heating, Air Conditioning and associated technology.

91. CANADIAN CONTROLLERS LIMITED. (Z-1)

1550 Birchmount Road, Scarborough, Ontario.

S. A. Musselman, President.

C. A. MacPherson, Manager, Product Engineer.

Professional R & D Staff:

Engineers: Electrical 4.

Scientific and Product Fields of R & D.

5 K.V. Air Break Magnetic Contactor, Motor Starters and 600 V. Motor control centres and fuses.

92. CANADIAN COPPER REFINERS LIMITED.

Bank of Nova Scotia Building, King St. West, Toronto.

R. V. Porritt.

PROCESS DEVELOPMENT GROUP (Z-1)

Durocher Street, Montreal East, Quebec.

E. Feleky, Superintendent of Process Development.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 3, Metallurgical 2.

Scientific and Product Fields of R & D.

Chemical and metallurgical engineering relating to the electrolytic refining and casting of copper, silver, gold, selenium, tellurium and production of copper sulphate and selenium and tellurium products, and Equipment design for above.

93. CANADIAN FILTERS LIMITED. (Z-1)

Chatham, Ontario.

M. J. Ripley.

P. E. Sheburn, Vice-President.

Professional R & D Staff:

Engineers: Mechanical 8.

Scientific and Product Fields of R & D.

Automotive Radiator Cooling Fans and Automotive Air Cleaner and Emission Devices (Induction Filtration).

94. THE CANADIAN FISHING COMPANY LIMITED.

Foot of Gore Ave., Vancouver 4, B.C.

Mr. D. F. Miller, President.

Mr. Granville F. Boothby, Research Manager.

THE CANADIAN FISHING COMPANY LIMITED, LABORATORY (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Canning of Salmon and Tuna. Freezing of round fish, fillets, fish blocks, etc. Fish meal and oil control and technical trouble shooting for product improvement.

95. CANADIAN FOREST PRODUCTS LTD.

15th Floor - 505 Burrard St., Vancouver 1, B.C.

J. G. Prentice.

J. R. Longstaffe.

95A. EBURNE SAW MILLS DIVISION. (Y-1, Z-1)

9149 Hudson Street, Vancouver, B.C.

John R. Connor, Mechanical Superintendent.

Professional R & D Staff:

Engineers: Forestry 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Lumber manufacture and by-product recovery.

95B. PLYWOOD AND HARDBOARD DIVISION — PLANNING & RESEARCH DEPARTMENT. (Y-1, Z-1)

440 Canfor Avenue, New Westminster, B.C.

T. T. Roubicek, Manager — Planning & Research Department.

Professional R & D Staff:

Scientists: Chemistry 2 and Mathematics 1.

Engineers: Mechanical 1 and Other 1.

Scientific and Product Fields of R & D.

Fibre Research specifically for fibreboard production, fire proofing of plywoods and fibreboards, testing of plywood glues and evaluation of bonds and development of new printing processes on sheet materials.

95C. PLYWOOD AND HARDBOARD DIVISION — PRODUCT DEVELOPMENT DEPARTMENT. (Y-1, Z-1)

440 Canfor Avenue, New Westminster, B.C.

G. F. Hoerber, Product Development Manager.

Professional R & D Staff:

Engineers: Forestry 3.

Scientific and Product Fields of R & D.

Wood Technology, Coatings Evaluation and Wood Adhesion.

95D. TIMBERLANDS DEPARTMENT. (Y-1)

15th Floor - 505 Burrard St., Vancouver 1, B.C.

K. J. Thomas, Timberlands Manager.

Professional R & D Staff:

Scientists: Forestry 6.

Engineers: Forestry 1.

Scientific and Product Fields of R & D.

Forest Management, Silviculture and Genetics (Tree Improvement)

96. CANADIAN GENERAL ELECTRIC COMPANY LIMITED.

214 King Street West, Toronto, Ontario.

J. Herbert Smith, President.

96A. ADVANCED PRODUCT DEVELOPMENT, PLASTICS BUSINESS SECTION. (Y-1, Z-1)

755 Division Street, Cobourg, Ontario.

Amsey Buehler, Manager, Advanced Product Development.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Plastic product development, composites, plastic processes and compounding, plastic moulding and fabrication.

96B. CARBOLOY BUSINESS SECTION, CHEMICAL & METALLURGICAL DEPARTMENT. (Y-1, Z-1)

1199 Lansdowne Avenue, Toronto 4, Ont.

C. A. Seger, Manager — Metal Manufacturing & Engineering.

Professional R & D Staff:

Engineers: Metallurgical 2 and Mining 1.

Scientific and Product Fields of R & D.

The development and testing of prototype tool products and improvement of existing products. Also metallurgical process development concerned with the manufacture of Carboloy powders and with the pressing and sintering of Carboloy cemented carbides. Development and improvement of machine tools for grinding Carboloy products including electrical discharge machine.

96C. CHEMICAL MATERIALS SECTION — RESIN LABORATORY. (Y-1, Z-1)

940 Lansdowne Avenue, Toronto 4, Ont.

T. Capper, Manager — Engineering.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Resinous materials, i.e. Alkyd Resins, Polyester Resins, Wire Enamels, Plasticisers.

96D. CONSTRUCTION & POWER DISTRIBUTION DEPARTMENT. (Y-1, Z-1)

940 Lansdowne Ave., Toronto 4, Ont.

Professional R & D Staff:

Engineers: Chemical 6, Electrical 60, Mechanical 14, Metallurgical 1 and Other Eng. & Bus. 1.

Scientific and Product Fields of R & D.

Distribution Transformers, Ballasts, Industrial Heating, Wiring Devices, Component Heating Devices, Lighting - incl. street-lighting and traffic control, Meters & Instruments, Wire & Cable and Distribution Assemblies.

96E. GUELPH PLANT. (Y-1, Z-1, Y-2, Z-2)

201 Woodlawn Rd. W., Guelph, Ont.

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

Power Transformers.

96F. HOUSEWARES & HOME ENTERTAINMENT DEPT. (Z-1)

80 Bradford Street, Barrie, Ontario.

J. Richardson, Manager — Engineering.

Professional R & D Staff:

Engineers: Electronic 4 and Mechanical 1.

Scientific and Product Fields of R & D.

Portable Appliances, Home Care Products, Garden Care Products and Personal Care Products.

96G. INFORMATION SYSTEMS & DEFENCE SYSTEMS DEPT. (Y-1, Y-2, Z-2)

830 Lansdowne Avenue, Toronto 4, Ont.

C. F. Miller, Manager — Defence & Special Projects Sec.

Professional R & D Staff:

Scientists: Mathematics 1.

Engineers: Electronic 19.

Scientific and Product Fields of R & D.

Applied research in signal processing for radar, sonar and communications including electronic and electro optical techniques. Development of radar, communications and special purpose electronic equipment for government use and commercial TV and radio broadcast transmission equipment including antennas.

96H. PETERBOROUGH PLANT. (Y-1, Z-1, Y-2, Z-2)

107 Park Street, North, Peterborough.

A. R. Hailey, Manager — Engineering Laboratory.

Professional R & D Staff:

17 Engineers.

Scientific and Product Fields of R & D.

Mechanical, Electrical, Electronics, Magnetics, Metallurgic, Chemistry, Rotating Machines, Industrial Controls, Wire and Cable, Computers, Power Switching, Power Systems Engineering, Capacitors, Atomic Reactors and Atomic Fuelling.

96I. SCARBOROUGH PLANT. (Y-1, Z-1, Y-2, Z-2)

1900 Eglinton Avenue E., Scarborough, Ont.

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

Turbines, and Reactor Power Equipments (Nuclear).

97. CANADIAN GYPSUM COMPANY, LIMITED.

790 Bay Street, Toronto, Ontario.

G. A. Long, President.

R. J. Gauthier, Manager, Research & Development.

RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1)

25 Clayson Road, Weston, Ontario.

Professional R & D Staff:

Engineers: Chemical 2, Mechanical 1, Textile 1.

Scientific and Product Fields of R & D.

Plastics Products, Fibres, Carpet and Floor Coverings, Latex Coatings and Impregnants.

98. CANADIAN HANSON & VANWINKLE COMPANY, LIMITED.

45 Vansco Road, Toronto 18.

A. C. West, President.

A. R. Moores, Technical Manager.

RESEARCH LABORATORY (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Buffing Compounds, Metal Cleaners, and Cotton Buffs.

99. CANADIAN INDUSTRIES LIMITED.

P.O. Box 10, Montreal 101, Quebec.

L. Hynes.

G. H. Segall.

99A. AMMUNITION RESEARCH LABORATORY. (Y-1, Z-1)

Brownsburg, Quebec.

J. M. Humphrys, Research Manager.

Professional R & D Staff:

Scientists: Physics 3.

Scientific and Product Fields of R & D.

Applied research and development relative to ammunition and detonator products.

99B. CENTRAL RESEARCH LABORATORY. (Y-1, Z-1)

McMasterville, Quebec.

G. H. Segall, Research Manager.

Professional R & D Staff:

Scientists: Chemistry 20, Physics 2, Library 1.

Engineers: Chemical 5, Electrical 2.

Scientific and Product Fields of R & D.

Commercial explosives, paints, plastics and heavy inorganic chemicals.

99C. EDMONTON RESEARCH LABORATORY. (Y-1, Z-1)

Edmonton, Alberta.

D. C. Eagles, Research Section Leader.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Polythene resins and compounds.

99D. EXPLOSIVES RESEARCH LABORATORY. (Y-1, Z-1)

McMasterville, Quebec.

J. M. Humphrys, Research Manager.

Professional R & D Staff:

Scientists: Chemistry 9, Physics 1.

Engineers: Chemical 5.

Scientific and Product Fields of R & D.

Commercial explosives.

99E. PAINT RESEARCH LABORATORY. (Y-1, Z-1)

1330 Castlefield Avenue, Toronto, Ontario.

J. R. Armstrong, Research Manager.

Professional R & D Staff:

Scientists: Chemistry 23.

Engineers: Chemical 6.

Scientific and Product Fields of R & D.

Surface coatings.

99F. PLASTICS LABORATORY. (Y-1, Z-1)

New Toronto, Ontario.

J. A. Durno, Research Section Leader.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Polythene film and packaging.

100. CANADIAN INGERSOLL-RAND COMPANY LTD.

620 Cathcart Street, Montreal, P.Q.

LABORATORY (Y-1, Z-1)

Courcellette Street Sherbrooke, P.Q.

I. Clarke-Pounder, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 2, Mining 1, Gas Engineer 1.

Scientific and Product Fields of R & D.

Machinery for Pulp & Paper Mills and Mine Hoists.

101. CANADIAN INTERNATIONAL PAPER COMPANY. (Y-1, Z-1)

15,300 Sherbrooke Street E., Pointe aux Trembles 530, P.Q.

H. H. Mahler, Manager.

C. M. Arian, Assistant Manager.

Professional R & D Staff:

Scientists: Chemistry 6.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Paper and Plastic Packaging.

102. CANADIAN KODAK COMPANY LIMITED. (Y-1, Z-1)

3500 Eglinton Avenue W., Toronto 15, Ontario.

R. L. Christie, President & General Manager.

J. A. Burgess, Vice-President & Plant Manager.

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

Photographic Materials.

103. CANADIAN MARCONI COMPANY.

2442 Trenton Ave., Montreal 16, Que.

S. M. Finlayson, Chairman & Chief Exec. Off.

K. C. M. Glegg, General Manager, Avionics Dept. Commercial Products Division.

103A. AVIONICS DEVELOPMENT LABORATORY. (Z-1, Z-2)*Professional R & D Staff:*

Engineers: Chemical 1, Electronic and Electrical 125 and Mechanical 25.

Scientific and Product Fields of R & D.

Doppler Radar — Aircraft (Avionics) Equipment and Altimetry — Aircraft (Avionics) Equipment.

103B. ENGINEERING DEPARTMENT MARINE & LAND COMMUNICATIONS DIVISION. (Z-1)

M. A. Robbins, Chief Engineer, Marine & Land Communications Division.

Professional R & D Staff:

Engineers: Electronic 26 and Mechanical 1.

Scientific and Product Fields of R & D.

Mobile & Fixed Radio Communications Equip., HF SSB Communications Equipment and Marine Radar and Navaid Accessories.

103C. TELECOMMUNICATIONS DEV. LABORATORY. (Z-1, Z-2)

D. F. Lee, Chief Design Engineer, Telecommunications Dept. Commercial Prod. Div.

Professional R & D Staff:

Engineers: Electrical, Electronic 36 and Mechanical 8.

Scientific and Product Fields of R & D.

Tactical Military Radio Relay Equipment.

104. CANADIAN PACIFIC RAILWAY COMPANY.

Windsor Station, Montreal 3, Que.

N. R. Crump, Chairman.

J. M. Bentham, Manager, Dept. of Research.

DEPARTMENT OF RESEARCH (Y-1, Z-1)

Professional R & D Staff:

Scientists: Mathematics 5.

Engineers: Chemical 2, Mechanical 2.

Scientific and Product Fields of R & D.

Cost research, Operations research, and Technical research.

105. CANADIAN PITTSBURGH INDUSTRIES LIMITED.

48 St. Clair Avenue West, Toronto 7.

F. J. Doyle, President.

E. D. MacLean, Director of Technical Services.

CENTRAL DEVELOPMENT (Y-1, Z-1)

3730 Lakeshore Blvd., Toronto 14, Ontario.

Professional R & D Staff:

Scientists: Chemistry 10.

Engineers: Chemical 5, Mechanical 1.

Scientific and Product Fields of R & D.

Development of Protective coatings.

106. CANADIAN PORCELAIN COMPANY LIMITED. (Y-1, Z-1)

P.O. Box 428, Hamilton, Ontario.

W. B. Hall, Vice-President & General Manager.

J. M. Somerville, Chief Engineer.

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Ceramic bodies for use in manufacture of electrical porcelain and insulator designs for electrical utility application and electrical apparatus.

107. CANADIAN REFRACTORIES LIMITED.

P.O. Box 1750, Station B, Montreal 2, P.Q.

W. R. Morris, Chairman of the Board.

L. R. Duncan, Assistant to President.

107A. TECHNICAL DEPARTMENT. (Z-1)

L. Hodnett, Assistant Technical Director.

Professional R & D Staff:

Scientists: Chemistry 3.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Basic brick and specialties products and acid specialties products.

107B. RESEARCH LABORATORIES. (X-1, Y-1, Z-1)

P.O. Box 160, Grenville, Quebec.

L. J. Davies, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 2, Mathematics 1, Physics 1 and Ceramics 2.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Basic brick and specialties products and acid specialties products.

108. CANADIAN RESEARCH INSTITUTE — DIV. OF CRITERION INSTRUMENTS

LTD. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)

85 Curlew Drive, Don Mills, Ont.

R. Spencer Soanes, Director.

E. Manthey, Development Manager.

Professional R & D Staff:

Scientists: Chemistry 1 and Physics 1.

Engineers: Electrical 1 and Electronic 2.

Scientific and Product Fields of R & D.

Instruments for measuring air and water pollution, electro medical instruments, instruments for teaching science and Industrial Electricity, Automatic Production Line Test Equipment and High Voltage Test Sets.

109. CANADIAN SAFETY FUSE COMPANY LIMITED.

P.O. Box 10, Montreal, Quebec.

J. B. Chalmers, Plant Manager.

J. G. Finlayson, Technical Manager.

CANADIAN SAFETY FUSE COMPANY LIMITED (Z-1)

Brownsburg, Quebec.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Explosives.

110. CANADIAN SUGAR FACTORIES LTD. (X-1, Y-1, Z-1)

Box 2150, Vancouver, B.C.

F. Rogers, President.

P. Bergen, Superintendent Agr. Research.

306 - 10th St. S., Lethbridge, Alta.

Professional R & D Staff:

Scientists: Agriculture 2.

Scientific and Product Fields of R & D.

Food Products, Agricultural Science and Chemistry.

111. CANADIAN TECHNICAL TAPE LTD. (Y-1, Z-1, X-2)

455 Cote Vertu Road, Montreal 9, Que.

Leonard Cohen, President.

Harvey Wacks, Technical Director.

Professional R & D Staff:

Scientists: Biology 1 and Chemistry 14.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

New Polymer Products and Processes.

112. CANADIAN VICKERS LIMITED. (Y-1, Z-1)

5000 Notre Dame St. E., Montreal 4, P.Q.

J. Eric Harrington, President.

W. R. Geiger, Chief Design Engineer.

Professional R & D Staff:

Scientists: Mathematics 1.

Engineers: Electrical 1 and Mechanical 5.

Scientific and Product Fields of R & D.

Pumps, Pulp & Paper Development and Welding Technique Studies.

113. CANADIAN WESTINGHOUSE CO. LTD. (X-1, Y-1, Z-1)

286 Sanford Ave. N., Hamilton, Ontario.

W. J. Cheesman, President.

G. O. Bernhardt, Director, Technical Services.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 34 and Other 26.

Engineers: Chemical 2, Electronic 61, Mechanical 13 and Metallurgical 11 and Electrical 33.

Scientific and Product Fields of R & D.

Electronics, Atomic Power, Molecular Solid State, Electronic Tubes, Turbines and Generators, Transformers and Circuit Breakers, Motors and Lighting.

114. CANLIN LIMITED. (Z-1, Z-2)

2215 Notre Dame St. E., Montreal 133, Que.

J. H. Gass, Development Superintendent.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Vegetable Oil seeds and synthetic Resins.

115. CANRON LIMITED.

1121 Place Ville Marie, Montreal, P.Q.

H. J. Lang.

115A. NEW PRODUCT DEVELOPMENT DEPT. (Y-1, Z-1)

160 St. Joseph Blvd., Lachine, Que.

W. J. Tyler, Manager, New Product Development.

Professional R & D Staff:

Scientists: Mathematics 1.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Rotary percussive hydraulic rock drills, railway maintenance of way lining equipment, mechanical and hydraulic and miscellaneous types of railway equipment.

115B. RESEARCH & DEVELOPMENT DEPARTMENT, PIPE DIVISION. (Y-1, Z-1)

60 Metropolitan Road, Scarborough, Ont.

W. F. Semenchuk, Manager — Research & Development.

Professional R & D Staff:

Engineers: Civil 1, Mechanical 1 and Metallurgical 2.

Scientific and Product Fields of R & D.

Cast Iron and Ductile Iron Pipe, Prestressed and Reinforced Concrete Pipe, Corrosion and Foundry Technology.

116. CARBITRON DEVELOPMENT LTD. (Y-1, Z-1)

1270 Boundary Road, Vancouver 6, B.C.

W. M. P. Stuart, President.

D. M. Stuart, Research Director.

8028 Enterprise St., Lake City, Burnaby 2, B.C.

Professional R & D Staff:

Scientists: Chemistry 1 and Physics 1.

Engineers: Electrical 1, Electronic 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Electrical discharge Machining and Associated Equipment.

117. CAREY-CANADIAN MINES, LTD.

East Broughton, Que.

R. J. Merrill, President.

John Sztuke, Research & Quality Cont. Man.

CAREY-CANADIAN MINES LABORATORY (Z-1)

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 1.

Engineers: Metallurgical 1 and Mining 1.

Scientific and Product Fields of R & D.

Milling of asbestos to develop specific properties suitable for specific uses.

118. CARTIER CHEMICAL CO. LTD. (Y-1, Z-1, Y-2, Z-2)

445 - 21st, Lachine, Que.

A. Robins, President.

A. Robins.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Floor finishes and sealers, industrial cleaning compounds, safety solvents, germicidal cleaners and disinfectants, liquid and powdered soaps, lubricating soaps, liquid detergents, deodorants and insecticides.

119. CASCADE ELECTRONICS LTD.

Electronic Avenue, Port Moody, B.C.

J. A. Spencer, C.A., Vice-Pres. & Gen. Mgr.

P. Lancaster, Mgr. Research & Development.

RESEARCH & DEVELOPMENT DEPT. (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 3.

Scientific and Product Fields of R & D.

Solid state electronic devices used in the Community Antenna Television distribution systems.

120. CEB LIMITED. (Y-1, Z-1)

950 Warden Ave., Scarborough, Ont.
R. J. Geleziunas, Managing Director.
A. Bachman, Chief Eng.

Professional R & D Staff:
Engineers: Electrical 1.

Scientific and Product Fields of R & D.
Service Modules, Circuit Breakers, Electrical Distribution Products and Lighting Fixtures.

121. CENTRAL ALBERTA DAIRY POOL.

Red Deer, Alberta.

D. R. Marshall.
Anthony Catchick, Director, Quality Central Research & Development.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 1 and Chemistry 1.

Scientific and Product Fields of R & D.
Imitation Milk, Filled Milk, Yakkurt, Cottage Cheese, Canned Puddings and Baby Feeds.

QUALITY CENTRAL & RESEARCH DIVISION (Z-1)**122. CENTRAL DYNAMICS LTD. (Y-1, Z-1, Z-2)**

147 Hymas Blvd., Pointe Claire, Que.

A. C. Boland, President.
P. W. Smith, Director, Control Systems Eng.
J. D. Ross, Director, Television Engineering.

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Aeronautical 1, Electrical 1 and Electronic 10.

Scientific and Product Fields of R & D.
Automatic Control equipment for use in the fields of Broadcasting, Education and Satellite Communications and digital control systems for use in the Hydro Electric and Industrial Process Control Fields.

123. CENTRAL ELECTRIC WIRE LTD. (Y-1, Z-1)

1 North Street, Perth, Ontario.

A. Bennell, Vice-President & Gen. Manager.
A. F. Downham, Project Engineer.

Professional R & D Staff:

Engineers: Metallurgical 3.

Scientific and Product Fields of R & D.
Metallurgical, Fourdrinier Wire Cloth and High Pressure Working of Metals.

124. CHAMPLAIN INDUSTRIES LTD.

Stanbridge Station, Que.

C. G. Rich, President.
J. Parkinson, Technical Director.

PRODUCT DEVELOPMENT LABORATORY (Z-1)

Professional R & D Staff:

Scientists: Chemistry 1 & Food Science 1.

Scientific and Product Fields of R & D.
Dehydrated Convenience Food Products, Protein Derivatives and Imitation Dairy Products.

125. CHAMPLAIN POWER PRODUCTS LTD. (Z-1)

951 Martin Grove Rd., Rexdale, Ont.

P. W. Gooch, President.
R. H. Hoove, Vice-President.

Professional R & D Staff:

Engineers: Aeronautical 1 and Mechanical 1.

Scientific and Product Fields of R & D.
Mechanical shaft seals and instrumentation.

126. CHEMCELL LIMITED.

800 Dorchester Blvd. W., Montreal, P.Q.

C. S. Malone, President.
L. G. Monton, Technical Director.

FIBRES DIVISION, TECHNICAL DEPT. (Y-1, Z-1)

Drummondville, Quebec.
J. E. Davis, Technical Manager.

Professional R & D Staff:

Scientists: Chemistry 15.

Engineers: Chemical 2, Textile 1, Physicist 1.

Scientific and Product Fields of R & D.
Manufacture and development of acetate and triacetate products and polypropylene processes and products.

127. CHEMECH ENGINEERING LIMITED. (Y-1, Z-1, Y-2, Z-2)

1827 West 5th Avenue, Vancouver 9, B.C.

G. O. Westerlund, President & General Manager.
K. Seto, Manager — Research & Development.

Professional R & D Staff:

Engineers: Chemical 7, Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.
Technical Process Development work for production of inorganic heavy chemicals.

128. CHEMECH POLLUTION ABATEMENT SYSTEMS LTD. (Z-1)

1827 West 5th Avenue, Vancouver 9, B.C.

G. O. Westerlund, Project Co-Ordinator.
K. Seto.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Pollution Abatement for Wood Products.

129. CHEMICAL & GEOLOGICAL LABORATORIES LIMITED. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)

14240 - 115th Avenue, Edmonton, Alberta.

G. C. Utas, General Manager.
A. Mustafa.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Petroleum 1.

Scientific and Product Fields of R & D.
Gas Chromatography, Liquid Chromatography and Reservoir Fluids.

130. CHEMICAL ENGINEERING RESEARCH CONSULTANTS LTD. (CERCL).
(Y-2, Z-2, X-3, Y-3)

200 College Street, Toronto 5, Ont.
Wm. F. Graydon, President.

Professional R & D Staff:

Scientists: Chemistry 2.
Engineers: Chemical 19, Mechanical 1.

Scientific and Product Fields of R & D.

CERCL provides technical advice for industrial research and development groups, assists in management and setting of project priorities, in screening of technical personnel for research positions and in preparing submissions to government requesting financial assistance for R and D costs. These client companies deal in chemicals for pulp and paper and fertilizer uses, production of coated papers, fluidic control, fibre glass components, petroleum products and recovered metals.

131. CHEMICAL PROJECTS LTD. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)

36 Greensboro Dr., Rexdale, Ont.
L. A. Pogorski.

Professional R & D Staff:

Scientists: Chemistry 2, Geology & Other Earth Sciences 1 and Physics 1.
Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Geochemistry, Chemical Engineering, Cryogenics, Stable Isotope Ratios, Trace Gases — analysis, and Air Pollution.

132. CHIPMAN CHEMICALS LIMITED.

519 Parkdale Ave. N., Hamilton, Ont.

T. C. L. Jacob, General Manager.
L. M. Godfrey, Technical Manager.

TECHNICAL DEPARTMENT (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Agriculture 7 and Chemistry 1.

Scientific and Product Fields of R & D.

Herbicides, Insecticides, Fungicides and Seed Treatments.

133. CHUBB-MOSLER AND TAYLOR SAFES LTD.

263 Queen St. E., Brampton, Ontario.

R. S. Ruston, President.
R. G. Castle, Vice-President, Plant.

CMT R. & D. DEPARTMENT (Y-1, Z-1)
M. H.. Markham, Chief Design Engineer.

Professional R & D Staff:

Engineers: Electrical 1, Electronic 1 and Mechanical 2.

Scientific and Product Fields of R & D.

Electronic equipment using digital techniques for Burglar and Fire Alarm equipment, Cash Dispensers, etc. Safe, Jail Cell and Security equipment design.

134. CLARE BROTHERS LIMITED. (Y-1, Z-1)

223 King St. E., Preston, Ontario.

H. Adams, President.
E. C. Clare, Marketing Manager.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Heat exchanger problems on warm air heating equipment, natural gas and domestic fuel oil, combustion problems and central cooling equipment.

135. CLARK EQUIPMENT OF CANADA, LTD. (Z-1, Z-2)

Michigan Blvd., St. Thomas, Ontario.

J. A. Meyer, Vice-President.
R. J. Orpana, Manager of Engineering.

Professional R & D Staff:

Scientists: Agriculture 1.
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Woodlands Machinery.

136. CLAYBURN-HARBISON LTD.

1685 Boundary Road, Vancouver 6, B.C.

R. M. Hungerford, President.
D. Albon, Laboratory Superintendent.

LABORATORY AT ABBOTSFORD (Z-1)
Abbotsford, B.C.

Professional R & D Staff:

Engineers: Engineers: Ceramics 2.

Scientific and Product Fields of R & D.

Refractories, Building Brick, Vitrified Clay Pipe and Flue Lining.

137. CLOUGH CHEMICAL COMPANY LTD. (Y-1, Z-1)

1375 Cote Vertu, Montreal 9, Que.

William A. Clough, President.
Roger Payen, Vice-President & Tech. Dir.
178 St. Peter Street, St. Johns, Que.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Chemicals for textile finishing, paper & leather trade, cosmetic industry and chelating agents.

138. COCKSHUTT FARM EQUIPMENT OF CANADA LIMITED.

148 Mohawk Street, Brantford, Ont.

G. E. Vincent, President and General Manager.
D. H. McNeil, Director of Engineering.

138A. DEVELOPMENT ENGINEERING DEPT. (Z-1)

Professional R & D Staff:
Scientists: Agriculture 2.
Engineers: Mechanical 6.

Scientific and Product Fields of R & D.
Agricultural Implements.

138B. RESEARCH ENGINEERING DEPARTMENT. (Y-1)

120 Prince Charles Road, Brantford, Ont.

Professional R & D Staff:
Scientists: Agriculture 1.
Engineers: Mechanical 2.

Scientific and Product Fields of R & D.
Agricultural Implements.

139. COLGATE-PALMOLIVE LIMITED.

64 Colgate Avenue, Toronto 8, Ont.

P. E. Beekman, President.

F. W. Trusler, Manager, Research & Development Department.

R. & D. DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:
Scientists: Chemistry 3.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Soaps and detergents, toilet articles, dentifrices and cosmetics.

140. COLUMBIA CELLULOSE COMPANY, LIMITED.

1111 West Hastings St., Vancouver, B.C.

George W. Scrimshaw, Pres. & Chief Exec. Off.

Donald M. Muir, Director, Development Service.

RESEARCH & DEVELOPMENT DIVISION (X-1, Y-1, Z-1)

852 Derwent Way, Annais Island, New Westminster, B.C.

E. S. Becker, Mgr. Res. & Development Division.

Professional R & D Staff:
Scientists: Chemistry 9.
Engineers: Chemical 5.

Scientific and Product Fields of R & D.
Chemical processing in relation to bleached Kraft and sulphite dissolving pulp production from wood. Cellulose chemistry and fibre science in relation to dissolving and paper pulp end-use performance.

141. COLUMBUS McKINNON LIMITED. (Z-1)

P.O. Box 668, St. Catharines, Ont.

E. Kennard, President & General Mgr.

E. Kennard.

Professional R & D Staff:
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.
Materials handling.

142. COLUMN FLOTATION CO. OF CANADA LTD.

22 Mercier Street, Dollard des Ormeaux, P.Q.

D. A. Wheeler, President.

Pierre Boutin, Chemist.

LABORATORY FOR PILOT STAGE TESTING (Y-1, Z-1, Y-2)

6A Gauron Blvd., Ville St. Pierre, P.Q.

D. A. Wheeler, Engineer.

Professional R & D Staff:
Scientists: Chemistry 1.
Engineers: Civil 1.

Scientific and Product Fields of R & D.
Flotation as applied to mining.

143. COMBUSTION ENGINEERING-SUPERHEATER LTD.

2015 Peel Street, Montreal 2, P.Q.

R. L. Riker, President.

R. E. Vuia, Vice-President & Chief Engineer.

R & LABORATORY (Y-1, Z-1, Y-2, Z-2)

Roy Street, Sherbrooke, Quebec.

G. P. Desbois, Supervisor Nuclear Component, Research & Development.

Professional R & D Staff:
Engineers: Mechanical 6 and Metallurgical 1.

Scientific and Product Fields of R & D.
Steam generator units, chemistry related to products of combustion of sulphur bearing fuel, steam generator, evaporator & concentrator, nuclear fuel fabrication process and air pollution abatement equipment.

144. COMINCO LTD.

630 Dorchester Blvd. W., Montreal 2, P.Q.

R. Hendricks, President.

E. H. Gautschi, Director, Research.

144A. TECHNICAL RESEARCH CENTRE. (X-1, Y-1, Z-1)

Trail, B.C.

R. C. Bell, Manager, Technical Research.

Professional R & D Staff:
Scientists: Agriculture 3, Chemistry 11, Geology & other Earth Sciences 2, Mathematics 1, Physics 2 and Other 2.
Engineers: Chemical 14, Metallurgical 2 and Mining 2.

Scientific and Product Fields of R & D.
Metallurgy of Lead and Zinc, Chemical Fertilizer Process and Product Research, Mineral Chemistry and Soil Chemistry.

144B. PRODUCT RESEARCH CENTRE. (X-1, Y-1, Z-1)

Cominco Ltd., Sheridan Park, Ontario.

J. R. Wellington, Manager, Product Research.

Professional R & D Staff:
Scientists: Chemistry 2.
Engineers: Chemical 5, Civil 1, Mechanical 1, Metallurgical 10 and Mining 1.

Scientific and Product Fields of R & D.
Lead and Zinc Product Development.

145. COMPUTER SCIENCES CANADA, LTD.

400 Laurier Avenue West, Ottawa 4, Ontario.

M. G. Goudge, President.

WEST COAST OPERATIONS, (X-1, Y-1, Z-1, X-2, Y-2, Z-2, Y-3, Z-3)

800 West Pender St., Vancouver, B.C.

G. H. Anderson, Manager.

Professional R & D Staff:

Scientists: Physics 1.

Engineers: Electrical 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Analysis and Programming pertaining to Geological & Geophysics, Forestry & Pulp & Paper, General Engineering & Construction, Mining, Fisheries; Management Information Systems and Real-time computer systems.

146. COMPUTING DEVICES OF CANADA LTD. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)

P.O. Box 508, Ottawa 4, Ontario.

J. F. Taylor, President & General Manager.

R. R. Hoge, Vice-President, Research & Engineering Group.

Professional R & D Staff:

Scientists: Mathematics 9 and Physics 25.

Engineers: Aeronautical 1, Chemical 2, Civil 2, Electronic 45 and Mechanical 18.

Scientific and Product Fields of R & D.

Analog, digital navigation/data handling systems; moving map display; horizontal situation indicator, tactical display; photographic and infrared optical scanning systems. Hypersonic, re-entry and supersonic aerodynamics, space environmental simulation, vulnerability studies, hypervelocity impact; thermodynamics; hypervelocity light gas gun launchers, range instrumentation, high "g" telemetry; rocket and missile technology; solid state physics; shock. Computer systems analysis, programming, data reduction and analysis. ASW battlefield acoustical detection, classification and position fixing systems. Engineering field services; repair and overhaul; oceanographic and hydrographic surveys systems, operation and maintenance.

147. CON-FORCE PACIFIC LTD. (X-1, Z-1)

P.O. Box 398, Calgary 2, Alta.

B. A. Zavitz, Research Engineer.

Professional R & D Staff:

Engineers: Civil 1.

Scientific and Product Fields of R & D.

Prestressed Structural Concrete, Precast Structural Concrete, Precast Architectural Concrete.

148. CONNECTICUT CHEMICALS LTD. (Y-1, Z-1, Y-2)

24 Curity Ave., Toronto 18, Ontario.

G. S. Lang.

A. Laube, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 1, Mathematics 1 and Pharmacy 2.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Aerosol Products.

149. CONNORS BROS. LTD.

Black's Harbour, N.B.

D. A. McLean, President.

T. E. Chick, Chief Chemist.

RESEARCH DIVISION (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

New Product Development (Foods), Processing Improvement and Modernization, New By-Product Utilization.

150. CONSOLIDATED-BATHURST LIMITED.

P.O. Box 69, Montreal, Que.

R. A. Irwin, President.

A. H. Vroom, Director of R & D.

150A. BAG DIVISION OF C.B. LTD., ST. LAMBERT ENGINEERING & DEVELOPMENT GROUP. (X-1, Y-1, Z-1)

P.O. Box 100, St. Lambert, P.Q.

P. A. Weber, Manager, Engineering.

Professional R & D Staff:

Engineers: Mechanical 5.

Scientific and Product Fields of R & D.

Equipment & machinery development — Packaging Adhesive film development.

150B. RESEARCH CENTRE, GRAND'MERE. (X-1, Y-1, Z-1)

Grand'Mere, P.Q.

T. G. Brandts, Asst.-Director of R & D.

Professional R & D Staff:

Scientists: Chemistry 6 and Physics 2.

Engineers: Chemical 7, Mechanical 1.

Metallurgical 4 and other 1.

Scientific and Product Fields of R & D.

Pulp and Paper — Packaging products and plastic products.

150C. RESEARCH & DEVELOPMENT LABORATORY. (X-1, Y-1, Z-1)

Bathurst Containers Ltd., 1035 Hodge St., St. Laurent, P.Q.

B. B. Mithel, Sec. Manager, Packaging Research.

Professional R & D Staff:

Scientists: Chemistry 3 and Physics 1.

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Paper and Board, Coatings, Analytical studies, Basic studies of fibre properties.

151. CONSUMERS GLASS COMPANY LTD. (Y-1)

Ville St. Pierre, Montreal, Quebec.

J. D. Mingay.

L. Gavaert.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Glass.**152. CONSUMERS GLOVE CO. LTD. (Y-1, Z-1)**

3925 Rachel Street E., Montreal 36, P.Q.

C. S. Davis, President.

Bernard H. Davis.

Professional R & D Staff:

Scientists: Mathematics 1.

Scientific and Product Fields of R & D.
Plastisols with a view to coating supported Vinyl gloves.**153. CONUCLEAR LTD. (Z-1)**

544 Berry Street, Winnipeg 21, Manitoba.

K. I. Roulston, President.

R. Hummel, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.
Nuclear Instruments for Physics and Nuclear Medicine Use.**154. COROD MANUFACTURING LTD.**

P.O. Box 6300 Station C, Edmonton, Alta.

A. Palynchuk, Manager.

A. Palynchuk.

R & D RE CONTINUOUS SUCKER ROD (X-1, Y-1, Z-1)

Professional R & D Staff:

Engineers: Petroleum 1.

Scientific and Product Fields of R & D.
Development of Continuous Sucker Rod and Field Equipment to Handle Continuous Sucker Rod.**155. COUNCIL OF THE FOREST INDUSTRIES OF BRITISH COLUMBIA.**

1477 W. Pender Street, Vancouver 5, B.C.

B. M. Hoffmeister, President.

F. N. Walsh, General Manager, Plywood Div.

PLYWOOD MANUFACTURERS LAB. (X-1, Y-1, Z-1, Y-3)

735 West 15th Ave., North Vancouver, B.C.

A. J. McGraw, Manager — Technical Research Department.

Professional R & D Staff:

Scientists: Wood Technology 1.

Engineers: Civil 5.

Scientific and Product Fields of R & D.
Basic research is carried out to determine working stresses and physical properties of plywood.**156. CRANE CANADA LIMITED.**

5800 Cote de Liesse Rd., Town of Mount Royal, Montreal 307, P.Q.

R. S. Reade, President.

R. F. Johnstone, Director of Product Development.

156A. PRODUCT DEVELOPMENT. (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Mathematics 1.

Engineers: Mechanical 10.

Scientific and Product Fields of R & D.
Valves, fittings, plumbing fixtures, fittings and heating products.**156B. CRANE CANADA LIMITED — COCHRANE DIVISION.**

1355 Martin Grove Rd., Rexdale, Ontario.

J. C. Henshaw, General Manager.

Peter Watts, Mgr. Cochrane R & D Section.

COCHRANE RESEARCH & DEVELOPMENT SECTION

(X-1, Y-1, Z-1, Z-2)

1757 Burlington St. E., Hamilton, Ont.

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.
Ion exchange, water treatment, and waste treatment.**157. THE CROWN DIAMOND PAINT CO. LTD. (Y-1, Z-1)**

41 Bates Road, Outremont, Montreal 8, P.Q.

J. N. Boisvert, President.

E. Krayner-Krauss, Director in Research and Development.

Professional R & D Staff:

Scientists: Chemistry 4.

Scientific and Product Fields of R & D.
Paint and Surface Coatings.**158. CROWN ELECTRONICS. (Y-1, Z-1, Y-2, Z-2)**

165 Pemberton, North Vancouver, B.C.

W. A. Craighead, President.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Electronic Field — mainly switching.**159. CROWN ZELLERBACH CANADA LIMITED.**

P.O. Box 2079, Vancouver 3, B.C.

R. G. Rogers, President.

F. O. Whipple, Director Research and Development.

CROWN ZELLERBACH BUILDING MATERIALS LIMITED
RESEARCH AND DEVELOPMENT LABORATORY (Y-1, Z-1)

1345 Vulcan Way, Richmond, B.C.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: Chemical 1, Forestry 2 and Mechanical 2.

Scientific and Product Fields of R & D.
Forest products process research, product research.

160. CRUSH BEVERAGES LTD. (Y-1, Z-1)

1590 O'Connor Dr., Toronto, Ont.

D. Armour, Vice-President, General Manager.
D. G. Ottaway, Vice-President, Production & Engineering.
Miss Beth Harper, Chief Chemist.

Professional R & D Staff:
Scientists: Chemistry 2.

Scientific and Product Fields of R & D.
Soft Drinks.

161. CRYOGENIC ENTERPRISES LTD.

#522, 602 West Hastings St., Vancouver 2, B.C.

J. T. Sparling, President.
Anker Gram, Professor of Engineering.
(Y-1, Z-1)

Professional R & D Staff:
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.
(a) Liquefaction of liquefied natural gas.
(b) Cryogenic equipment for the liquefaction, storage and handling of liquefied natural gas.
(c) Fields in which liquefied natural gas can be utilized.

162. CYANAMID OF CANADA LIMITED.

635 Dorchester Blvd. W., Montreal, P.Q.

B. H. Loper, President.

162A. BUILDING PRODUCTS DEPARTMENT RESEARCH & DEVELOPMENT DEPARTMENT. (Y-1, Z-1)

St. Jean, Quebec.

J. Sibalis, Manager, Research & Development Department.

Professional R & D Staff:
Scientists: Chemistry 1.
Engineers: Chemical 1 and Mechanical 1.

Scientific and Product Fields of R & D.
Decorative surfacing products, composite decorative surfaced panels and systems, substrate and core products and fire retardant wood and paper products.

162B. TECHNICAL DEPT. NIAGARA FALLS PLANT. (Y-1, Z-1)

Box 330, Niagara Falls, Ontario.

B. R. Davis, Technical Manager.

Professional R & D Staff:
Scientists: Chemistry 2.
Engineers: Chemical 3.

Scientific and Product Fields of R & D.
Calcium Carbide, Calcium Cyanamid, Calcium Cyanide, Calcium Oxide, Urea and Melamine Resins.

162C. TECHNICAL DEPT. — WELLAND PLANT. (Y-1, Z-1)

P. O. Box 240, Niagara Falls, Ontario.

E. K. Watson, Technical Manager.

Professional R & D Staff:
Scientists: Chemistry 3.
Engineers: Chemical 8.

Scientific and Product Fields of R & D.
Fertilizers, chemicals and animal feeds.

162D. NIAGARA FALLS RESEARCH. (Y-1, Z-1)

P.O. Box 240, Niagara Falls, Ont.

D. R. May, Research Manager.

Professional R & D Staff:
Scientists: Chemistry 4.
Engineers: Chemical 4 and Mining 1.

Scientific and Product Fields of R & D.
Phosphine derivatives, xanthates, fertilizers, explosives and lime and limestone.

163. CYCLONE ENGINEERING SALES LTD.

10275 Jasper Avenue, Edmonton, Alberta.

P. D. J. Vinkenburg.

CYCLONE ENGINEERING R & D LAB. (Y-1, Z-1)

Highway 16 East, Clover Bar, Alberta.

R. Sehgal, Head of Laboratory.

Professional R & D Staff:
Engineers: Chemical 1, Civil 2 and Mining 1.

Scientific and Product Fields of R & D.
Mining Engineering — Beneficiation of coal, mineral sands and ores. Pollution Control — Stripping of solids from liquids.

164. DANFOSS MFG. CO. LTD. (Y-1, Z-1)

1230 Lakeshore Rd. E., Port Credit, Ont.

B. T. Nielson, General Manager.

S. G. Petursson.

Professional R & D Staff:
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.
Automatic Controls for Heating, Refrigeration and Plumbing.

165. DEARBORN CHEMICAL CO. LTD.

3451 Erindale Station Rd., Mississauga, Ont.

H. N. Potter, Exec. Vice-Pres. & Gen. Mgr.

R. F. Weidner, Laboratory Manager.

DEARBORN RESEARCH LABORATORIES (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:
Scientists: Chemistry 4.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Industrial Process Water Treatment, Waste Water Treatment, Cooling Water Treatment and Protective Coatings.

166. DECCA RADAR CANADA (1967) LIMITED.

23 Six Point Road, Toronto 18, Ont.

L. J. Dennett, President.

H. E. Dempsey, Systems Engineering Manager.

NAVIGATOR DEVELOPMENT LABORATORY (Y-1, Z-1, Y-2, Z-2)

E. E. Thompson, Manager.

Professional R & D Staff:

Scientists: Physics 3.

Engineers: Electronic 3 and Mechanical 1.

Scientific and Product Fields of R & D.

Airborne digital computer for use with the Decca Low Radio Frequency Hyperbolic Area Coverage Navigation System, hybrid microelectronic circuits for use with digital computers, radar ancillaries and the design of traffic control systems and equipment.

167. THE DE HAVILLAND AIRCRAFT OF CANADA, LTD. (X-1, Y-1, Z-1)

Downsview, Ontario.

W. B. Boggs, President.

W. T. Heaslip Vice-President — Engineering.

R. D. Hiscocks, Director of Research & Future Projects.

Professional R & D Staff:

Scientists: Mathematics 2 and Physics 2.

Engineers: Aeronautical 68, Electrical 2, Mechanical 14, Metallurgical 2 and Other 2.

Scientific and Product Fields of R & D.

Development of STOL aircraft. Applied research in the fields of: Aerodynamics, Handling, Turbulence and its effects on STOL aircraft, Structures and materials, Design studies and basic research in aerospace science.

168. DELAMERE & WILLIAMS COMPANY, LIMITED. (Y-1, Z-1, Y-2, Z-2)

35 Carson St., Toronto 14, Ontario.

H. S. Stevenson, Vice-Pres. and Gen. Mgr.

L. G. Bateman, Vice-Pres. — Eng.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Electrical 1 and Mechanical 4.

Scientific and Product Fields of R & D.

General sciences specifically applicable to high speed packaging machinery such as mechanics, hydraulics, fluidics, electronics, thermodynamics, plastics and chemistry, etc.

169 DE LEUW, CATHER & COMPANY OF CANADA LIMITED.

133 Wynford Drive, Don Mills, Ontario.

A. Harvey, Senior Vice-President.

H. J. Edens, Head of Systems Engineering Section.

SYSTEMS ENGINEERING SECTION (Y-1, Y-2)

Professional R & D Staff:

Engineers: Civil 4.

Scientific and Product Fields of R & D.

Development of new techniques for transportation planning studies, and Transit routing studies. Study on numerical control of machine tools.

170. DELMAR CHEMICALS LIMITED.

9321 Airlie St., Ville LaSalle, P.Q.

P. W. Cuff, President.

C. Podesva, Director of Research.

RESEARCH LABORATORY (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 10.

Engineers: Chemical 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Chemical Compounds for Pharmaceutical Industry, Continuous Lactone Production, Flour Maturing Agents, Nutritional Additives for Food and Feed Industry.

171. DELORO STELLITE.

P. O. Box 5300, Belleville, Ont.

J. C. Houston, General Manager.

D. L. Watson, Chief Metallurgist.

RESEARCH DEPT. (Z-1)

Professional R & D Staff:

Engineers: Metallurgical 1.

Scientific and Product Fields of R & D.

Cobalt Base Alloys.

172. DEMAG INDUSTRIAL EQUIPMENT LIMITED.

2400 Highway 122, Clarkson, Ontario.

H. Herzog, General Manager.

W. Vogt, Chief Eng.

DESIGN OFFICE, WORKSHOP (Z-1)

Professional R & D Staff:

Engineers: Electrical 1 and Mechanical 2.

Scientific and Product Fields of R & D.

Material handling products.

173. DENVER LABORATORIES (CANADA) LIMITED.

451 Alliance Ave., Toronto 9, Ont.

Carleton Ashley, President.

Alan Wohlman, Director of Research.

DENVER LAB. FOR MEDICAL RESEARCH (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Biology 2, Chemistry 1 and Medicine & Dentistry 2.

Scientific and Product Fields of R & D.

A basic biochemical and physiological research programme is designed to investigate the effect of enzymes on the gastrointestinal absorption, tissue penetration, and pharmacological activity of drugs.

174. DESBERGERS LIMITED. (Y-1, Z-1)

8480 St. Laurent Blvd., Montreal 11, P.Q.

B. Laporte, Executive Vice-President.

P. Saucier, Pharmacist.

Professional R & D Staff:

Scientists: Chemistry 2, Pharmacy 3.

Scientific and Product Fields of R & D.

Pharmaceutical, antibiotic, hormone and vitamin products. Cosmetic products, dispensing of medication.

175. DESITRON COMPANY LTD. (Y-1, Z-1, Z-2, Y-3)

198 Hymus Road, Scarborough, Ontario.

W. B. Scott, General Manager.

G. Zelinger, Director, Research and Development.

Professional R & D Staff:

Engineers: Electronic 3.

Scientific and Product Fields of R & D.

Applications of microwave heating and drying in industry development of miniaturized and solid state electronic components at microwave frequencies.

176. DILWORTH, SECORD, MEAGHER AND ASSOCIATES LTD.

4195 Dundas St. W., Toronto 18, Ont.

P. B. Dilworth, President.

I. J. Billington, Director, Advanced Design and Technology Group.

R & D LABORATORY (Y-1, X-2, Y-2, Z-2)

3235 Whatton Way, Cooksville, Ontario.

G. F. Bremner, Manager, Engineering Science Department.

Professional R & D Staff:

Scientists: Mathematics 1, Physics 2.

Engineers: Aeronautical 3, Electrical 2, Electronic 2, Mechanical 5 and Eng. Physics 1.

Scientific and Product Fields of R & D.

Aeronautical, Engineering Physics, Mechanical Mathematics and Physics, Electrical and Electronic, Sensor Development and Pump Shaft Seals.

177. DISTILLERS CORPORATION LIMITED. (Y-1, Z-1)

1430 Peel St., Montreal, Quebec.

Samuel Bronfman.

W. A. Curran, Director of Research and Development.

Professional R & D Staff:

Scientists: Biology 3, Chemistry 4.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Yeast development (new cultures), corn development (new varieties and potential growing areas in Can.), new alcoholic beverages, grain variety program (selected special varieties), distillers dried grain investigation, process research, development of food products from distillers solubles & yeast.

178. DITTO OF CANADA, LTD.

45 Jutland Road, Toronto 18, Ont.

J. S. Cunningham, Vice-Pres.

V. Perry, Tech. Service Mgr.

TECHNICAL SERVICES LAB. (Y-1, Y-2, Z-1)

H. Salamat, Development Engineer.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 2 and Mechanical 1.

Scientific and Product Fields of R & D.

Copying machines & supplies, printing (flat & rotary), microfilm and paper.

179. DIVERSEY (CANADA) LTD.

2645 Highway 122, Clarkson, Ontario.

B. M. Kaple, President.

R. D. Gibson, Manager of Research.

DIVERSEY RESEARCH CENTRE (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 2 and Other 2.

Engineers: Chemical 1 and Metallurgical 1.

Scientific and Product Fields of R & D.

Industrial detergents, metal finishing compounds, sanitizers and floor finishes.

180. THE DOBBIE INDUSTRIES LIMITED.

104 Water St. North, Galt, Ont.

G. H. Dobbie.

B. Fehertoi (R. & D. Manager)

R & D (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3.

Engineers: Textile 3.

Scientific and Product Fields of R & D.

Performed in machinery design and development and in product design and development — in Textile primary and secondary industry.

181. DOMCO INDUSTRIES LIMITED.

2200 St. Catherine Street East, Montreal, P. Q.

J. F. Baillie, President.

I. A. MacLaine, Manager, Research & Development.

RESEARCH & DEVELOPMENT LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

Oleo resinous & Plastics compositions for flooring and protective coatings, coated fabrics, linoleum, vinyl floor tile adhesives, carpets.

182. DOME MINES LIMITED. (Y-1, Z-1)

South Porcupine, Ontario.

C. P. Girdwood, Vice-President & Gen. Mgr.

Professional R & D Staff:

1 Engineer.

Scientific and Product Fields of R & D.

Improvement in Mining Methods and Metallurgical practice and in techniques for cost reduction. Research on methods of ore analysis.

183. DOMINION ALUMINUM FABRICATING LTD.

36 Coronet Road, Toronto 18, Ont.

Murray R. Maynard, President.

Charles F. Wood, Chief Engineer.

DOMINION ALUMINUM FABRICATING LTD. ENGINEERING (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Development of Telescopic Helicopter Hangars, Street Lighting Standards, Aircraft Hauldown Sections and Shipping Containers.

184. DOMINION BRIDGE COMPANY, LTD. (Y-1, Z-1, Z-2)

P.O. Box 280, Montreal, Quebec.

M. McMurray, President.

P. E. Savage, Vice-President, Engineering.

Professional R & D Staff:

Engineers: Civil 1, Mechanical 1 and Metallurgical 1.

Scientific and Product Fields of R & D.

Welding and fabricated metal products design and development.

185. DOMINION COLOUR CORP. LTD. (Y-1, Z-1)

199 New Toronto St., Toronto 14, Ont.

D. Robb, President.

J. S. Wright, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 7.

Scientific and Product Fields of R & D.

Synthetic Inorganic and Organic Coloured Pigments.

186. DOMINION ENGINEERING WORKS, LIMITED. (Y-1, Z-1)

795 - 1st Avenue, Lachine, Quebec.

L. R. Douglas, Vice-President and General Manager.

H. L. Lang, Research and Development Manager.

Professional R & D Staff:

Engineers: Mechanical 37.

Scientific and Product Fields of R & D.

Research and Development is carried out on Paper Machinery, Hydraulic Turbines, Valves, Pumps, Mining Machinery, Rolling Mill Machinery, Gear units and couplings, Iron and Steel rolls, Power cranes and shovels and machinery to special design.

187. DOMINION FOUNDRIES AND STEEL, LIMITED.

1330 Burlington St. E., P.O. Box 460, Hamilton, Ont.

F. H. Sherman, Pres. & Chief Exec. Officer.

F. J. McMulkin, Vice-President — Research.

SHERMAN/LOOSELY RESEARCH CENTRE (Y-1, Z-1)

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 3 and Metallurgical 10.

Scientific and Product Fields of R & D.

Iron & Steelmaking, Steel Rolling, Coking of Coal, Steel sheets coated and uncoated.

188. DOMINION MAGNESIUM LIMITED. (Z-1)

7 King St., 19th Floor, Toronto 1, Ont.

J. Thomson, Vice-President.

H. A. Timm, Plant Metallurgist.

Haley, Ontario.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Metallurgical 3.

Scientific and Product Fields of R & D.

Process development magnesium and calcium metal.

189. THE DOMINION METALWARE INDUSTRIES. (Z-1)

56 Cayuga Avenue, Port Credit, Ontario.

O. K. Ross.

O. K. Ross.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Hospital Patient Room Furniture.

190. THE DOMINION ROAD MACHINERY CO. LTD.

Maitland Road, Goderich, Ontario.

B. A. Sully, President.

J. G. Macdonald, Director of Development.

DEVELOPMENT DIVISION (Y-1, Z-1)

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Road graders, Hydraulics, Transmissions, and Snow Removal equipment.

191. DOMTAR LIMITED.

2300 Sun Life Building, Montreal 2, Que.

T. N. Beaupre, Chairman & President.

A. E. Penney, Vice-Pres., Eng. & Research.

RESEARCH CENTRE (X-1, Y-1, Z-1)

Senneville, Quebec.

G. H. Tomlinson, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 30, Mathematics 1 and Physics 3.

Engineers: Chemical 10, Forestry 4, Mechanical 4, and Metallurgical 2.

Scientific and Product Fields of R & D.

Pulp & paper, industrial chemicals, building products and metal powders.

192. DOUGLAS ENGINEERING CO. LTD. (Y-1, Z-1)

16 Lesmill Road, Don Mills, Ontario.

John E. Marks, President.

John C. Lange, Manager, Eng. Co. Division.

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Air filtration, tempering and moving and gas combustion.

193. DOVER CORPORATION (CANADA) LIMITED.

126 John St., Toronto 2B, Ont.

F. V. Reddy, President.

TURNBULL ELEVATOR DIVISION, RESEARCH ENGINEERING DEPARTMENT (Y-1, Z-1)

F. S. Harwood, Engineering Manager.

Professional R & D Staff:

Engineers: Electrical 2, Electronic 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Electronic and mechanical aspects of elevators, escalators, etc.

194. DOW CHEMICAL OF CANADA, LIMITED.

Sarnia, Ontario.

L. D. Smithers, President.

B. B. Hillary, Research Manager.

194A. RESEARCH DEPARTMENT. (X-1, Y-1, Z-1)

Professional R & D Staff:
Scientists: Agriculture 3 and Chemistry 38.
Engineers: Chemical 8.

Scientific and Product Fields of R & D.
Chemicals — Organics, inorganics.
Plastics — Polystyrene, polyethylene.
Agricultural Chemicals — herbicides.

194B. RESEARCH DEPARTMENT. (Z-1)

Edmonton, Alberta.

J. E. Shipka, Plant Manager.

Professional R & D Staff:

Scientists: Chemistry 2.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Plastics — Polystyrene.

195. DUNHAM-BUSH CANADA LTD. (Y-1)

140 Wendell Ave., Weston, Ont.

E. O'Neill, General Manager.

D. M. Giffin, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 4.

Scientific and Product Fields of R & D.
Steam heating and power plant specialties — valves, fittings, strainers, etc.

196. DUNLOP CANADA LTD.

Dunlop Drive, Whitby, Ontario.

Geo. F. Plummer, President.

196A. TIRE TECH. DEPT. (Z-1)

H. K. Cunliffe, Technical Manager.

Professional R & D Staff:

Scientists: Chemistry 2 and Physics 1.
Engineers: Chemical 1 and Mechanical 1.

Scientific and Product Fields of R & D.
Tire constructions & tire manufacturing processes.

196B. DUNLOP RESEARCH CENTRE. (X-1, Y-1)

Sheridan Park, Ontario.

N. S. Grace, General Manager.

Professional R & D Staff:

Scientists: Chemistry 12 and Physics 3.
Engineers: Chemical 2.

Scientific and Product Fields of R & D.
Polymer Research.

196C. INDUSTRIAL DIVISION, PRODUCT ENGINEERING DEPARTMENT. (Y-1, Z-1)

870 Queen St. E., Toronto, Ont.

W. G. Merkel, Manager, Product Engineering.

Professional R & D Staff:

Scientists: Chemistry 3 and Physics 1.
Engineers: Chemical 4.

Scientific and Product Fields of R & D.
Belting, V-belts, industrial hose, miscellaneous mechanical rubber goods, cements and adhesives, camelback repair materials, sheet rubbers, agricultural and structural rubber products, bicycle tires and tubes and chemical resistant tank linings, roll covering.

197. DUPLATE CANADA LIMITED.

50 St. Clair Ave., W., Toronto, Ontario.

D. S. Chant, President.

S. Bateson, Director of Research.

RESEARCH LABORATORIES (Y-1, Z-1, Y-2)

First Avenue, Oshawa, Ontario.

Professional R & D Staff:

Scientists: Ceramics 8.

Scientific and Product Fields of R & D.
Electronic ceramics, ferroelectric ceramic materials and glass products.

198. DU PONT OF CANADA LIMITED.

555 Dorchester Blvd. W., Montreal 128, Que.

R. G. Beck, President.

D. F. Brown, Research Department Manager.

198A. CUSTOMER TECHNICAL CENTRE. (Y-1, Z-1)

P.O. Box 3500, Kingston, Ontario.

Professional R & D Staff:

Scientists: Chemistry 10, Physics 1 and Textile Chemistry 2.
Engineers: Chemical 3, Mechanical 6, Textile 1 and Other 1.

Scientific and Product Fields of R & D.
Synthetic textiles, plastics products, packaging films, refrigerants and aerosols.

198B. FIBRES TECHNICAL LABORATORY. (Y-1, Z-1)

Kingston, Ontario.

G. Perris, Fibres Technical Lab. Manager.

Professional R & D Staff:

Scientists: Chemistry 5, Mathematics 3 and Physics 3.
Engineers: Chemical 3, Electrical 1, Mechanical 12 and Other 2.

Scientific and Product Fields of R & D.
The chemistry and physics and engineering applications of polymers and fibres, especially polyamides.

198C. MAITLAND TECHNICAL. (Y-1, Z-1)

Maitland Works, Ontario.

J. M. Stewart, Technical Manager.

Professional R & D Staff:

Scientists: Chemistry 8.

Engineers: Chemical 10, Electrical 1, Mechanical 1, Metallurgical 2 and Other 1.

Scientific and Product Fields of R & D.

Organic chemistry, chemical engineering, and metallurgy.

198D. RESEARCH CENTRE. (X-1, Y-1, Z-1)

P.O. Box 5000, Kingston, Ontario.

Murray K. Phibbs, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 11.

Engineers: Chemical 12, Mechanical 2 and Other 1.

Scientific and Product Fields of R & D.

Polymer production processes, fabrication processes, properties and new catalysts.

199. DURHAM INDUSTRIES (CANADA) LTD. (Z-1)

P.O. Box 40, Station D, Montreal 22, P.Q.

David B. Clark, General Manager.

Kaizer E. Jabalpurwala, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Pigment technology and applications.

200. DYE & CHEMICAL CO. OF CANADA LTD. (Z-1)

P.O. Box 818, Kingston, Ontario.

Dan R. Atsen, President.

D. E. Ramsay, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Chemistry — food dyestuffs, food chemicals, deformers and dry cleaning products.

201. EASTERN GUMMED PAPER CO. LTD. (Z-1)

1525 Hymus Blvd., Dorval, Que.

G. S. Brown.

V. Love.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Adhesive.

202. EBCO INDUSTRIES LTD.

260 East 5th Ave., Vancouver 10, B.C.

Helmut Eppich, President.

Ed Halas, Electronic Engineer.

ELECTRONIC DATA COLLECTION (Z-1)

Professional R & D Staff:

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Designing and developing Electronic Data Collection System for labour, material and inventory recording and controlling.

203. ECLIPSE CONSULTANTS LIMITED

R.R. #3, Oshawa, Ontario.

Mrs. Ursula M. Robson, President.

John E. Becker, Manager.

TURBO ENGINEERING COMPANY (Y-1, Z-1)

R.R. #6, Bowmanville, Ontario.

Professional R & D Staff:

Engineers 1.

Scientific and Product Fields of R & D.

Fluid drives, couplings, brakes and transmissions, etc. Leather making machinery.

204. THE E. B. EDDY COMPANY.

Hull, P.Q.

W. C. R. Jones, President & Managing Director

W. Gallay, Director of Research.

204A. RESEARCH DEVELOPMENT DIVISION. (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Pulp and Paper.

204B. STEEL EQUIPMENT, A DIVISION OF EDDY MATCH COMPANY LIMITED.

P.O. Box 250, Pembroke, Ontario.

J. W. Martin, General Manager.

H. D. Bailey, Chief Designer.

PRODUCT RESEARCH DEPT. (Z-1)

D. J. McGregor, Design Engineer.

Professional R & D Staff:

Engineers: Mechanical 7.

Scientific and Product Fields of R & D.

Design all new products. Improve design and methods changes on present products; office filing cabinets, desks, shelving, special contracts in the office furniture, proline paper filing products, seating products.

205. EDO (CANADA) LIMITED.

P.O. Box 97, Cornwall, Ontario.

H. M. Johnson, Jr., President.

R. S. Adhav, Chief Physicist.

RESEARCH LAB. WITHIN EDO (CANADA) LTD. (Y-2)

Professional R & D Staff:

Scientists: Physics 1.

Scientific and Product Fields of R & D.

Crystallography — Electro-optical crystals for display systems, sponsored by D.R.B. and R.A.D.C. (U.S.)

206. ELDORADO NUCLEAR LIMITED.

151 Slater Street, Ottawa, Ont.

W. M. Gilchrist, President.

G. F. Colborne, Mgr., R & D Division.

METALLURGICAL LABORATORY (Y-1, Z-1, Y-2, Z-2)

Tunney's Pasture, Ottawa, Ontario.

J. M. Jardine, Laboratory Superintendent.

Professional R & D Staff:

Scientists: Chemistry 7 and Metallurgy 1.

Engineers: Chemical 3, Civil 1 and Metallurgical 4.

Scientific and Product Fields of R & D.

Extractive or hydrometallurgical treatment of ores and concentrates, pyrometallurgical processing, chemical processing and analytical chemistry.

207. ELECTRIC REDUCTION COMPANY OF CANADA LTD.

155 Etobicoke Dr., Islington, Ontario.

L. G. Lillico, President.

E. J. Bissaillon, Vice-President Technical Division.

RESEARCH & DEVELOPMENT LAB. (Y-1, Z-1, Y-2, Z-2)

J. D. McGilvery, Research & Development Lab.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: Chemical 5 and Textile 1.

Scientific and Product Fields of R & D.

Inorganic chemistry as related to the product areas: (1) Pulp & Paper (e.g. chlorates, chlorine dioxide); (2) industrial phosphate chemicals (e.g. sodium tripolyphosphate); (3) agricultural chemicals and by-products (e.g. inorganic fluorides). Electrochemistry as related to the product areas: (1) pulp and paper (e.g. chlorate manufacture); (2) nuclear energy (purification of D2O by electrolysis).

208. ELECTROHOME LIMITED.

809 Wellington St. N., Kitchener, Ont.

C. A. Pollock, President.

208A. APPLIANCE & MINOR ELECTRONICS DEVELOPMENT ENGINEERING. (Z-1)

283 Duke St. W., Kitchener, Ont.

Harold Fraser, Manager, Appliance Engineering.

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Humidifiers, dehumidifiers, fans, portable phonographs and lamps.

208B. CONSUMER ELECTRONICS DEVELOPMENT ENGINEERING. (Z-1)

D. H. Johnston, Mgr. Electronics Eng. & Man. Division.

Professional R & D Staff:

Engineers: Electronic 18.

Scientific and Product Fields of R & D.

Stereo, hi-fidelity, radio and accessories; television: color, black and white receivers, electronic organs and accessories.

209. THE ELECTROLYSER CORPORATION LTD. (Y-1, Z-1, Y-2, Z-2)

22 Cocker Ave., Toronto (Etobicoke), Ont.

A. K. Stuart, President.

R. F. Sullivan, Design Engineer.

Professional R & D Staff:

Engineers: Chemical 2 and Electrical 2.

Scientific and Product Fields of R & D.

Electrolysis of water, other electrolytic processes, hydrogen generating, compressing and handling systems, oxygen generating, compressing and handling systems, heavy water purification and production, silicon power rectifiers and controls.

210. ELECTRONIC ASSOCIATES OF CDA LTD. (Y-1, Z-1)

4616 Yonge St., Willowdale, Ont.

E. W. Leaver, President.

G. R. Mounce, Sec.-Tr. & V.-P. of Engineering & R.D.

Professional R & D Staff:

Engineers: Electronics 3 and microwave 1

Scientific and Product Fields of R & D.

Instrumentation for and control of paper machines and related processes.

211. ELWORTHY & COMPANY LIMITED. (Y-1, Z-1)

3709 East 1st Avenue, Burnaby 2, B.C.

B. C. T. Elworthy

A. D. Fonseca, Chief Engineer.

Professional R & D Staff:

Engineers: Electrical 3.

Scientific and Product Fields of R & D.

Positioning systems for sawmill machinery, automation of sawmill machinery with measurement, computer and memory systems, variable speed drives in particular static and amplidyne types as applied to sawmills and plywood mills.

212. EMCO LIMITED — PLASTICS DIVISION.

Dundas St. E., London, Ontario.

P. Ivey, President.

L. Swain, Chief Engineer.

ENGINEERING DEPARTMENT (Y-1, Z-1)*Professional R & D Staff:*

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

R & D of use of plastic materials in water and sewage piping and fittings. Developing articles in chrome plated plastics and mechanical parts for bathroom accessories and valves.

213. E.M.I. COSSOR ELECTRONICS LTD.

P.O. Box 1005, Dartmouth, N.S.

W. Pigdon, President.

B. J. Starkey, Head of Research & Engineering.

COSSOR ELECTRONICS WOODSIDE LABS (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Electronic 8 and Mechanical 6.

Scientific and Product Fields of R & D.

Telecommunications, navigational aids, A.S.W. Sonars, Oceanographic Instrumentation, Medical Electronics, Industrial Quality Control.

214. ENAMEL & HEATING PRODUCTS LTD. (Z-1)

Sackville, N.B.

W. J. Wienand Jr.

Donald R. Downing, Development Engineer.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Electric and gas ranges, electric and oil hot water heaters, warm air furnaces and air conditioning systems, and oil space heaters.

215. ENGINEERING RESEARCH ASSOCIATES. (X-1, X-2)

160 Bay Street, Room 409, Toronto 1, Ontario.

J. A. McKillop, Partner and General Manager.

Professional R & D Staff:

Engineers: Aeronautical 2.

Scientific and Product Fields of R & D.

Analytical solutions to dynamic problems, model testing in wind and water tunnels and development of computer programs for management systems.

216. ERIE MANUFACTURING CO. (CANADA) LTD. (Z-1,Z-2)

Stouffville, Ontario.

K. A. Rogers, Vice-President & General Manager.

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Water treatment and water conditioning controls; heating — air conditioning with controls.

217. ERIE TECHNOLOGICAL PRODUCTS OF CANADA LTD.

5 Fraser Avenue, Trenton, Ontario.

F. W. Deacon, Plant Manager.

N. J. Hellicar, R & D Manager.

R & D DEPARTMENT (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Scientists: Chemistry 1 and Physics 1.

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Thin dielectric films and ceramic dielectrics for electronic components.

218. ESB CANADA LIMITED. (Y-1, Z-1)

2301 Dixie Rd., Mississauga, Ont.

V. G. Zeller, President.

W. D. Adams, Development Engineer.

218A. ESB CANADA LIMITED. (Y-1, Z-1)*Professional R & D Staff:*

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

Scientific Fields — Chemical, electrical, mechanical, metallurgical.

Product Groups — Dry and storage batteries (materials, components, assemblies, manufacturing devices, manufacturing processes, testing devices).

218B. ESB CANADA LIMITED. (Y-1, Z-1)

663 Warden Ave., Scarborough, Ont.

A. R. Katz, Manager, Industrial Engineering.

Professional R & D Staff:

Engineers: Chemical 1 and Electrical 2.

Scientific and Product Fields of R & D.

Scientific Fields — Chemical, electrical, mechanical, metallurgical.

Product Groups — Dry and storage batteries (materials, components, assemblies, manufacturing devices, manufacturing processes, testing devices).

218C. ESB CANADA LIMITED. (Y-1, Z-1)

1800 Sargent Ave., Winnipeg 21, Manitoba.

J. Armstrong, Manager, Engineering.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Scientific Fields — Chemical, electrical, mechanical, metallurgical.

Product Groups — Dry and storage batteries (materials, components, assemblies, manufacturing devices, manufacturing processes, testing devices).

219. ESE LIMITED. (X-1, Y-1, Z-1, Z-2)
 1770A Albion Rd., Rexdale, Ont.
 D. K. Ritchie, President.
 G. R. Lang, Director of Research.

Professional R & D Staff:
 Engineers: Electronic 6.

Scientific and Product Fields of R & D.
 Data communications, network synthesis: filters, equalizers of all kinds, digital data transmission: modems, terminal apparatus, in-band signalling: touch-tone and similar applications of tone signalling.

220. EX-CELL-O CORPORATION OF CANADA LIMITED. (Z-1)
 P.O. Box 3535, London, Ontario.
 W. Sawruic, Vice-President & General Manager.
 R. M. Bell, Chief Engineer.

Professional R & D Staff:
 Engineers: Mechanical 3.

Scientific and Product Fields of R & D.
 Machine Tools.

221. FAIRGRIEVE & SON LIMITED. (Z-1)
 44 Dovercourt Rd., Toronto 3, Ont.
 Douglas M. Fairgrieve.
 Donald F. Fairgrieve.

Professional R & D Staff:
 Engineers: Textile 1, Other 1.

Scientific and Product Fields of R & D.
 Home laundry equipment.

222. FALCONBRIDGE NICKEL MINES LIMITED.
 7 King St. East, Toronto 1, Ontario.
 H. J. Fraser, President.
 F. R. Archibald, Vice-Pres., Metallurgy and Research.

222A. METALLURGICAL LABORATORIES. (X-1, Y-1, Z-1)
 Box 900, Thornhill, Ontario.
 Clyde L. Lewis.

Professional R & D Staff:
 Scientists: Chemistry 4, Geology and other Earth Sciences 1, Physics 1 and Met. 2.
 Engineers: Chemical 1, Electrical 1, Metallurgical 6 and Geol. Phys. 3.

Scientific and Product Fields of R & D.
 Process metallurgy, materials science, chemical spectrochemical and instrumental analysis, process control and instrumentation and mineralogy.

222B. RESEARCH DEPT., SUDBURY OPERATIONS. (Y-1, Z-1)
 Falconbridge, Ontario.
 M. P. Sudbury, Chief Metallurgist.

Professional R & D Staff:
 Engineers: Chemical 2 and Mechanical 8.

Scientific and Product Fields of R & D.
 Process Metallurgy and Process Control and Instrumentation. In Mills, Smelter and processing plant for production of nickel, copper, cobalt and iron ore.

223. FAMILIX PRODUCTS LIMITED. (Z-1)
 1600 DeLorimier Street, Montreal, P.Q.
 Maurice Parent, President.
 Jean-Jacques Elie, Technical Director.

Professional R & D Staff:
 Scientists: Chemistry 2.

Scientific and Product Fields of R & D.
 Beauty preparations and cosmetics, Patented Medicine, Cleaning fluids, wax polish, polishes, detergents, food products and insecticides.

224. FEDERAL PACIFIC ELECTRIC OF CANADA.
 19 Waterman Ave., Toronto 16, Ont.
 B. W. Ball, President.
 A. J. Goodwin, Vice-Pres. Engineering.
SYSTEMS PROTECTION & CONTROL DEPT. (Y-1, Z-1, Z-2)
 C. A. A. MacPhee, Manager.

Professional R & D Staff:
 Scientists: Physics 1.
 Engineers: Electrical 3.

Scientific and Product Fields of R & D.
 Ground fault protection in elec. distribution systems and relay systems using solid state devices.

225. FEDERAL WIRE & CABLE DIVISION, H. K. PORTER (CAN) LTD. (Y-1, Z-1)
 P.O. Box 90, Guelph, Ontario.
 D. E. Mussell, General Manager.
 E. A. Pollard, Chief Engineer.

Professional R & D Staff:
 Scientists: Chemistry 1.
 Engineers: Electrical 2.

Scientific and Product Fields of R & D.
 Rubber Compounds and Wire & Cable Products.

226. FERRANTI-PACKARD ELECTRIC LIMITED.
 121 Industry St., Toronto 15, Ont.
 T. Edmondson, President.
 C. Keil, Manager Research & Reliability, Power Transformer Division.

226A. POWER TRANSFORMER DIVISION RESEARCH DEPT. (Y-1)

Professional R & D Staff:
 Engineers: Chemical 1, Electrical 2 and Electronic 1.

Scientific and Product Fields of R & D.
 Oil-filled Power Transformers.

226B. RESEARCH DEPARTMENT, ELECTRONICS DIVISION. (X-1, Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 1 and Physics 1.

Engineers: Chemical 1, Electrical 3, Electronic 27 and Mechanical 5.

Scientific and Product Fields of R & D.

Fuel Cells — Molten Carbonate, Cryogenic Magnets, Digital Computer Technology, Digital Computer Peripherals — information displays, paper tape readers, optical scanners and curve digitizers.

227. FERRO ENAMELS (CANADA) LTD. (Y-1, Z-1)

354 Davis Ave., Oakville, Ontario.

A. D. Langmuir, President.

T. E. Howarth, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

New and improved porcelain enamels, inorganic oxides for colouring ceramic products, glaze frits, and glass colours.

228. FIBERGLAS CANADA LIMITED.

48 St. Clair Ave., Toronto 7, Ont.

A. J. Fisher, President.

K. P. Gladney, Manager, Research, Development and Control.

TECHNICAL CENTRE (Y-1, Z-1)

#40 Highway, Sarnia, Ontario.

Professional R & D Staff:

Scientists: Chemistry 12 and Ceramic 1.

Scientific and Product Fields of R & D.

Applied Research in composite fibrous materials. Development of glass fibre insulating products and processes of glass melting and processes of resin manufacture as related to the technology of glass fibre manufacture.

229. FIELD AVIATION COMPANY LIMITED (Y-1, Z-1, Y-2, Z-2)

P.O. Box 1001, Malton, Ontario.

A. F. Soutar, President.

J. K. Hawkshaw, Chief Engineer.

Professional R & D Staff:

Engineers: Aeronautical 2.

Scientific and Product Fields of R & D.

Water (and chemical) Bombing Systems. Outfitting of Aircraft for Unusual Purposes.

230. FISCHER BEARINGS MANUFACTURING LIMITED. (Z-1)

801 Ontario Street, Stratford, Ontario.

O. Weth, Managing Director.

Professional R & D Staff:

Engineers: Electrical 1 and Mechanical 2.

Scientific and Product Fields of R & D.

Production machinery, measuring, heat treating and assembly devices for the purpose of increasing production capabilities and the improvement of our product.

231. FISONS (CANADA) LIMITED.

26 Prince Andrew Place, Don Mills, Ont.

John S. Hewitt, Pres. & General Manager.

TECHNICAL DEPT. AGRICULTURAL (Y-1, Z-1)

Peter W. McMullen, Technical Manager.

Professional R & D Staff:

Scientists: Agriculture 2.

Scientific and Product Fields of R & D.

Herbicides and insecticides.

232. FLEET MANUFACTURING LIMITED.

Box 300, Fort Erie, Ontario.

R. K. Fraser, President.

A. S. Zakrzewski, Manager of Eng.

ENGINEERING DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Development of large Radar Antennas, Sonar Equipment, Metal to Metal, Metal to Plastic, etc. Bonding Methods (primarily for Aircraft Components).

233. FLEXBETON LIMITED. (Y-1, Z-1)

Dominion Industrial Bldg., Ville St. Pierre, Que.

W. T. H. Clark, President.

A. G. Hoffman, Vice-President.

Professional R & D Staff:

Engineers: Civil 2.

Scientific and Product Fields of R & D.

Concrete technology — improved properties. New applicators of concrete.

234. FLUID POWER LIMITED. (X-1, Y-1, Z-1, Y-2, Z-2)

282 Belfield Road, Rexdale, Ontario.

W. L. Hutchison, President.

E. Davison, Director of Research.

Professional R & D Staff:

Engineers: Electrical 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Fluid Power & Control — Hydraulic, Pneumatic Systems (Including Fluidics) and Components, Engineering Materials, Lubrication Seals and Surface Finishes and High Pressure Engineering.

235. FOOD PRODUCTS LIMITED. (Y-1, Z-1)

5555 St. Patrick St., Montreal 20, Que.

Alfred J. Kahn, President.

Professional R & D Staff:

Scientists: Chemistry 4.

Scientific and Product Fields of R & D.

Cereals, flavours, spices, seasonings, and meat products.

236. FORANO LIMITED. (Y-1, Z-1)

1600 St. Paul Street, Plessisville, P.Q.

P. M. Forand, President & General Manager.

G. Bilocq, Technical Director.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Lumber handling, lumber dressing, bulk handling and mechanical transmission machinery.

237. FOSCO CANADA LIMITED. (Z-1)

201 Alice St., Guelph, Ontario.

D. A. Dodson, President, M. Reading, Vice-President & Gen. Mgr.

F. Neat, Technical Director.

Professional R & D Staff:

Engineers: Metallurgical 3.

Scientific and Product Fields of R & D.

Metallurgical chemicals to treat metals, moulds and dies for steelworks and foundry applications as well as exothermic compounds and heat insulators for metallurgical applications.

238. FOUND BROTHERS AVIATION LTD. (Z-1)

P.O. Box 160, Grand Bend, Ontario.

H. N. Shoji, President.

D. N. Ferrence, Deputy Chief Engineer.

Professional R & D Staff:

Engineers: Aeronautical 3.

Scientific and Product Fields of R & D.

Development of a single engine high wing monoplane for utility applications.

239. FRANCON LIMITED.

3701 Jarry St. E., St. Michel, Montreal, Que.

Leonard Franceschini.

R. A. Lapinas, Assistant Director, Quality Control.

"TEMPERATURE 829" (Y-1)

Professional R & D Staff:

Engineers: Civil 2.

Scientific and Product Fields of R & D.

To develop optimum curing cycle for precast concrete members; to correlate concrete properties measured by laboratory specimens cured under various elevated temperature cycles; and establish merits of live steam curing.

240. FRASER COMPANIES LIMITED.

Edmundston, New Brunswick.

J. H. Heuer, President.

D. A. Forbes, Director of Engineering and Research.

CENTRAL RESEARCH DEPARTMENT (Y-1, Z-1)

Karl Patrick, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 7.

Engineers: Chemical 9.

Scientific and Product Fields of R & D.

Paper products, paper board, and pulp (Kraft and Sulphite).

241. FREE-PISTON DEVELOPMENT CO. LTD. (Y-1, Z-1, Y-2, Z-2)

745 Gardiners Rd., Kingston, Ont.

J. S. Campbell, President.

M. B. Drewniak, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 4.

Scientific and Product Fields of R & D.

R & D (Free-Piston) Engines, air-compressor with opposed piston diesel engine and integrated engine-hydrostatic pump.

242. FREEZE-DRY FOODS LIMITED. (Z-1, Z-2)

579 Speers Road, Oakville, Ontario.

W. B. Kerr, President.

W. R. Smithies, Vice-President.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Freeze-Dried Foods and Technique of Freeze-Drying.

243. FRITZ WERNER LTD. (Z-1, Z-2)

695 Montée de Liesse, Montreal 9, P.Q.

W. H. Graupe, President.

P. Joris, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 1 and Mechanical 2.

Scientific and Product Fields of R & D.

Machine Tool Development and Electronic Controls for Machine Tools.

244. GARRETT MANUFACTURING LIMITED. (X-1, Y-1, Z-1)

255 Attwell Dr., Rexdale, Ontario.

W. C. Tate, Vice-President and General Mgr.

R. R. Taylor, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Electrical 20, Mechanical 1, Metallurgical 1 and other 2.

Scientific and Product Fields of R & D.

Aircraft Temperature Control Systems, Pneumatic Signal Generators, Static Inverters, Radio Emergency Beacons, and Micro-electronics.

245. GENAIRE (1961) LIMITED. (Z-1, Z-2)

P.O. Box 84, St. Catharines, Ont.

G. R. Wooll, Managing Director.

H. B. Picken, Chief Engineer.

Professional R & D Staff:

Engineers: Aeronautical 3.

Scientific and Product Fields of R & D.

High Pressure Hose End Fittings Evaluations, Structural Development of Radar Antenna.

246. GENERAL FOODS LIMITED.

2200 Yonge St., Toronto 12, Ontario.

R. S. Hurlbut, President.

T. A. Watts, Research Manager.

246A. GENERAL FOODS LTD. RESEARCH LABORATORY. (Y-1, Z-1)

520 William Street, Cobourg, Ontario.

K. M. Torrie, Laboratory Manager.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 3, Chemistry 7, Food Science 4.

Engineers: Chemical 2, Food 1.

Scientific and Product Fields of R & D.

Chemistry, Engineering, Microbiology, Food Science, Agricultural Science and Analytical and Sensory Methodology.

246B. GENERAL FOODS LTD., RESEARCH LABORATORY. (Y-1, Z-1)

795 - 90th Avenue, LaSalle, P.Q.

W. R. Waring, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 4, Mathematics 1.

Engineers: Chemical 4.

Scientific and Product Fields of R & D.

Chemistry, Engineering, Food Science, Coffee, Cocoa and Chocolate, Emulsions and Analytical and Sensory Methodology.

247. GENERAL MOTORS OF CANADA, LTD. (Y-1, Z-1)

Oshawa, Ontario.

E. H. Walker, President & General Manager.

W. A. Woodcock, Chief Engineer.

Professional R & D Staff:

Engineers: Electrical 2.

Scientific and Product Fields of R & D.

Applied Research to simulate lubricant behaviour in the lab. and correlate results with actual field experience in vehicle components. Development of improved vehicle lubricants, particularly to withstand Canadian winter conditions, improvements of vehicle heating and defrosting systems.

248. GENERAL PAINT CORP. OF CANADA LTD.

950 Raymur Avenue, Vancouver 6, B.C.

P. T. Dahle, President.

J. M. Little, Research & Dev. Mgr.

GENERAL PAINT RESEARCH & DEVELOPMENT LABORATORY (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Solvent borne and Emulsion Vehicles (Resins) for Protective Coatings, Polymerization Processes, Upgrading Existing Protective Coatings and Development of New Finished Products.

249. GENERAL PRECISION INDUSTRIES LTD.

455 Craig St. W., Montreal 126, Que.

T. Toczyłowski, President.

H. S. Toczyłowski, Vice-President.

ENGINEERING DEPARTMENT (Y-1, Z-1, Z-2)

555 Blvd. Boivin, Granby, Que.

Z. A. Krajewski, Chief Electronics Engineer & Head of R & D Activity

Professional R & D Staff:

Engineers: Electronic 7 and Mechanical 2.

Scientific and Product Fields of R & D.

VLF, LF, VHF and UHF Radio Direction Finding Systems.

250. GENERAL STEEL WARES LIMITED.

Toronto, Ontario.

R. M. Barford, President.

J. Paul Jones, Corp. Director of Engineering.

250A. APPLIANCE DIVISION. (Z-1)

Adelaide & Nelson Sts., P.O. Box 5040, Terminal "A", London, Ont.

H. A. Moir, Manager of Engineering.

Professional R & D Staff:

Engineers: Mechanical 5.

Scientific and Product Fields of R & D.

Major household appliances and Metal building material.

250B. BEATTY DIVISION. (Z-1)

Fergus, Ontario.

R. Taylor, Manager of Quality and Technology.

Professional R & D Staff:

Engineers: Mechanical 1, Agriculture 3.

Scientific and Product Fields of R & D.

Equipment for the care and feeding of farm animals and Water pressure tanks, Domestic, agricultural, industrial water pumps and accessories, Range boilers and Boat trailers.

250C. BEATTY DIVISION. (Y-1, Z-1)

Fergus, Ontario.

R. W. Taylor, Manager of Technology.

Professional R & D Staff:

Scientists: Agriculture 3.

Scientific and Product Fields of R & D.

Water Pumping Systems and Applications, Farm Equipment.

251. GENERAL TIME OF CANADA LIMITED. (Y-1, Z-1)

P.O. Box 239, Peterborough, Ontario.

F. W. Emerson, Chief Development Engineer.

Professional R & D Staff:

Engineers: Electronic 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Electromechanical Energy Conversion Devices, Energy Conversion in Microwatt region, Advanced time keeping concepts and new products.

252. GEONICS LIMITED.

2 Thorncliffe Pk. Dr., Toronto 17, Ont.

Vaino Ronka, President.

DEPARTMENT OF DEV. & RESEARCH (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electronic 3.

Scientific and Product Fields of R & D.

Geophysical instruments special electronic devices.

253. GEN-TEC INC. (Y-1, Z-1)

2120 Lavoisier, Ste-Foy, Que. 12.

J. M. Langevin, General Manager.

T. Wildi, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 1.

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Electric load control, educational equipment, and electric heating.

254. GEO-MET LIMITED. (Y-1, Z-1, Y-2, Z-2)

263 Clemow Avenue, Ottawa.

W. A. Morgan, President.

Professional R & D Staff:

Engineers: Metallurgical 4.

Scientific and Product Fields of R & D.

Metallurgical: Extraction, Physical and Chemical Engineering.

255. GEOPHYSICAL ENGINEERING & SURVEYS LTD.

Box 49, Toronto-Dominion Centre, Toronto, Ont.

N. B. Keevil Jr., President.

D. C. Fraser, Chief Geophysicist.

ELECTROMAGNETIC LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Geology and other Earth Sciences 1.

Scientific and Product Fields of R & D.

Air borne electromagnetic equipment development, computer-oriented data reduction of aerial EM data.

256. THE GLIDDEN COMPANY LIMITED.

351 Wallace Ave., Toronto 9, Ont.

J. W. Fowler, Managing Director.

F. L. Steele, Technical Director.

256A. RESEARCH & DEVELOPMENT LABORATORY. (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 19.

Scientific and Product Fields of R & D.

R & D on Resins and Plastics in Emulsion or Solution form. Development of Protective Coatings derived from the above mentioned resins. Study of methods of application and the physical properties of such coatings.

256B. WALKER BROTHERS LIMITED. (Y-1, Z-1)

5684 Beresford Street, Burnaby 1, B.C.

L. A. Story, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Paint, coatings, chemicals, fungicides, mildewicides relating to the wood industry and to a lesser degree, metals and synthetics.

257. GLOLOK CO. LTD. (Z-1, Z-2)

4755 Blvd. des Grandes Prairies, Montreal 38, Que.

A. Lipes, President.

B. Lieberman, Chief Research Engineer.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Packaging machinery and plastic foam as a thin laminate.

258. GLULAM PRODUCTS LTD.

#10 King Edward Ave., Fraser Mill, New Westminster, B.C.

B. Madsen.

G. E. Price, Eng.

SPECIAL PROJECTS DEPT. (Y-1, Z-1)

Professional R & D Staff:

Engineers: Civil 1 and Forestry 1.

Scientific and Product Fields of R & D.

Adhesive technology, process development, mechanical eng., product development structural eng.

259. GOULD-NATIONAL BATTERIES OF CANADA LTD. (X-1, Y-1)

275 Lewis St., Fort Erie, Ontario.

R. G. Neill, President.

K. V. N. Rao, Senior Electro-Chemist.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Electro-Chemistry — Fuel Cells.

260. W. R. GRACE & CO. (CRYOVAC DIV.)

2365 Dixie Rd. N., Cooksville, Ont.

J. F. Holbrook.

R. A. Bolton, Technical Manager.

IN PLANT ORGANIZATION (Y-1, Z-1)

Professional R & D Staff:

Scientists: Biology 1 and Chemistry 1.

Engineers: Chemical 4, Electrical 1, Electronic 1 and Mechanical 1.

Scientific and Product Fields of R & D.

Plastic packaging materials.

261. GRANBY FARM COOPERATIVE.

10 Laval Street, P.O. Box 219, Granby, P.Q.

P. Pariseault, Managing Director.

LABORATORY, RESEARCH AND DEVELOPMENT SECTION (Y-1)

R. N. Giroux, Assistant Technical Director.

Professional R & D Staff:

Scientists: Agriculture 3.

Scientific and Product Fields of R & D.

The characteristics of lactic cultures for cheese-making, Removing the colour from cheese whey and standardizing the composition of milk for cheese-making.

262. THE GREAT LAKES PAPER CO., LTD.

P.O. Box 430, Fort William, Ont.

C. J. W. Fox, President.

C. J. Carter, Vice-President, Engineering.

RESEARCH & DEVELOPMENT DEPT. (Y-1, Z-1, Y-2, Z-2)

Gordon A. Allen, Director of Research & Development.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Scientific Fields: Chemical Engineering and Chemistry. Product Groups: Newsprint, and Pulp and Other Paper Products.

263. THE GRIFFITH LABORATORIES LTD. (Y-1, Z-1)

757 Pharmacy Ave., Scarborough, Ont.

L. G. Rector, President.

J. S. Wenzel, Vice-President, Technical.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 6 and Pharmacy 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Bakers, canners and packers supplies.

264. GROWERS' WINE COMPANY LIMITED.

3948 Quadra St., Victoria, B.C.

B. H. Roberts, C.A. Pres. and Chief Exec. Off.

F. Helmer, Winemaster.

ENOLOGY AND VITICULTURE (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Enologists 2.

Scientific and Product Fields of R & D.

Wine, grape growing.

265. GUMMED PAPERS LIMITED. (Z-1)

Henderson Avenue, Brampton, Ont.

D. M. Hood, President.

J. M. Robertson, Technical Director.

14 Dohme Avenue, Toronto 16, Ont.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Paper and foil converting, extrusion coating, foil, film and paper building products and remoistenable gummed paper.

266. HARDING CARPETS LIMITED.

Morrell Street, Brantford, Ont.

A. Davidson, President.

W. D. L. Sherren, Product Development Mgr.

PRODUCT DEVELOPMENT DEPT. (Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Textile 5.

Scientific and Product Fields of R & D.

Materials of construction, methods of construction, dyeing and finishing processes.

267. CANADIAN CAR DIV. OF HAWKER SIDDELEY CANADA LIMITED.

7 King Street East, Toronto 1, Ontario.

T. J. Emmert, Chairman of the Board & President.

FORT WILLIAM DIVISION (Z-1)

1001 Montreal Street, Fort William, Ontario.

Professional R & D Staff:

Engineers: Electronic 1, Mechanical 14.

Scientific and Product Fields of R & D.

Woodland equipment, Trailers and Rail Cars.

268. HAYES-DANA LIMITED.

Hayes Road, Thorold, Ont.

W. Fairhurst, President.

T. Trojanowski, Supervisor Prod. Eng.

NEW PRODUCT DEVELOPMENT DEPT. (Y-1, Z-1)

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Mechanical Power Transmission — drive shafts, gear boxes, etc.

269. HAYWARD GORDON LIMITED. (Z-1)

7485 Bath Road, Malton, Ontario.

K. A. Travers, President.

K. P. Willett.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Centrifugal pumps.

270. HOECHST PHARMACEUTICALS, DIVISION OF CDN. HOECHST LTD.
 3400 Jean Talon St. W., Montreal 301, P.Q.
 H. G. Giese, General Manager.
 SCIENTIFIC ADMINISTRATION & DEVELOPMENT (Y-1, Z-1)

Professional R & D Staff:
 Scientists: Medicine & Dentistry 1, Pharmacology 1, Pharmacy 1.
Scientific and Product Fields of R & D.
 Conduct clinical and para-medical studies with products applicable in following fields: Diabetes, Hypertension, Edema, Fibrinolysis. Veterinary: Edema, Distemper.

271. HOFFMANN-LA ROCHE LIMITED. (Y-1)
 1956 Bourdon St., St. Laurent, P.Q.
 J. S. Fralich, President.
 R. M. Fyfe, Medical Director.

Professional R & D Staff:
 Scientists: Medicine & Dentistry 6.
Scientific and Product Fields of R & D.
 Medical preparations.

272. HONEYWELL CONTROLS LIMITED.
 740 Ellesmere Rd., Scarborough, Ont.
 L. F. Wills, President.
 J. H. Gregson, Chief Design Engineer.
 PRODUCT DESIGN DEPARTMENT (Z-1)

Professional R & D Staff:
 Scientists: Physics 1.
 Engineers: Electrical 1, Electronic 1 and Mechanical 1.
Scientific and Product Fields of R & D.
 Electronic control equipment for heating and air conditioning systems, input/output terminal devices for electronic data processing.

273. HOOKER CHEMICALS LIMITED.
 100 Amherst Avenue, North Vancouver, B.C.
 L. H. Schnurstein, Vice-Pres. Manufacturing.
 C. J. Harke, Supervisor Electrochemical Dev.
 ELECTROCHEMICAL DEVELOPMENT GROUP (Y-1, Z-1)

Professional R & D Staff:
 Scientists: Chemistry 2.
 Engineers: Chemical 3.
Scientific and Product Fields of R & D.
 Design and development of chlorine cells and design of chlorate cells.

274. FRANK W. HORNER LIMITED. (X-1, Y-1, Z-1)
 5485 Ferrier, Town of Mount Royal, Que.
 H. R. Horner, President.
 L. Mitchell, Vice-President — Research.

Professional R & D Staff:
 Scientists: Biology 8, Chemistry 20, Medicine & Dentistry 3 and Pharmacy 3.
Scientific and Product Fields of R & D.
 Pharmaceutical chemistry, pharmacology, virology and biochemistry.

275. HOWARDS & SONS (CANADA) LTD.
 Wallrich Avenue, Cornwall, Ont.
 W. W. Metcalfe, President and Managing Dir.
 H. A. Daners, Technical Director.
 RESEARCH & DEVELOPMENT LABORATORY (Y-1, Z-1, Z-2)
 Naresh Bhargava, Chief Research Chemist

Professional R & D Staff:
 Scientists: Chemistry 2.
 Engineers: Chemical 1.
Scientific and Product Fields of R & D.
 Plasticizers, polyesters, lubricants (synthetic) and synthesis of Organic Chemicals.

276. HUDSON BAY MINING & SMELTING COMPANY LIMITED.
 Monarch Life Building, 333 Broadway, Winnipeg, Man.
 W. A. Morrice, Senior Vice-President and Gen. Manager.
 J. N. Kirkbride, Research Superintendent.
 RESEARCH-ASSAY DEPARTMENT (Z-1)
 Flin Flon, Manitoba.

Professional R & D Staff:
 Scientists: Chemistry 7.
 Engineers: Chemical 3, Metallurgical 5.
Scientific and Product Fields of R & D.
 Improvement in Processes for Metallurgical Extraction of Minerals from Ores, Optimum Metallurgy for Mineral Beneficiation of New Ores, Development of Processes for Recovery of Mineral Values from Dormant Metallurgical Residues, Periodic Testing of Metallurgical Processes for Pyrometallurgical and Hydro-Metallurgical Processes in Recovery of Zinc and Copper from Ores and Development of Analytical Procedures requires for Metallurgical and Product Control.

277. HUDSON'S BAY OIL AND GAS COMPANY LIMITED. (Z-1)
 320 Seventh Avenue S.W., Calgary 2, Alberta.
 L. J. Richards, President.
 C. C. Frye, Co-ordinator of Production Research.

Professional R & D Staff:
 Engineers: Electrical 1.
Scientific and Product Fields of R & D.
 Oil Production.

278. H. S. HUNNISETT LIMITED. (Z-1)
 200 Wicksteed Avenue, Toronto 7, Ontario.
 H. S. Hunnisett, President.

Professional R & D Staff:
 Scientists: Chemistry 1.
Scientific and Product Fields of R & D.
 Polymer Floor Finishes, detergents, varnish type seals and soaps, etc.

279. HUNTEC LIMITED. (Y-1, Z-1)

1450 O'Connor Drive, Toronto 16, Ontario.

N. R. Paterson, Chief Executive Officer.

R. W. Hutchins, Director, Research.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 13, Physics 1.

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Applied geophysics and instrumentation.

280. HURON CHEMICALS LIMITED. (Y-1, Z-1)

67 Kipling Avenue South, Toronto 18, Ontario.

H. V. Casson, President.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 2, Electrical 2, Mechanical 1.

Scientific and Product Fields of R & D.

Electrochemicals and processes and electrochemical equipment, pulp bleaching chemicals and processes and recoveries, electrolytic manganese processes and equipment and inorganic phosphatic chemicals.

281. HUSKY MANUFACTURING & TOOL WORKS LTD. (Z-1, Z-2)

200 Bentworth Ave., Toronto 19, Ontario.

R. D. Schad, President.

H. Rees, Vice-President, Research & Development.

Professional R & D Staff:

Engineers: Electrical 1 and Mechanical 6.

Scientific and Product Fields of R & D.

Machinery for manufacture of plastics, auxiliary equipment used in the processing of plastics products, handling equipment and plastics molds.

282. HUSKY OIL LTD.

815 - 6th St. S.W., Calgary, Alta.

G. E. Nielson, Chairman of the Board.

INVESTIGATIONAL LAB. (Y-1, Z-1)

Lloydminster, Alberta.

V. O. Juba, Refinery Chemist.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Asphalt products — st. run, oxidized, specialties, specialty middle oils, and custom crude oils.

283. HUYCK CANADA LIMITED.

Arnprior, Ontario.

J. K. Melville, Vice-President & General Manager.

P. J. Newsom, Vice-President, Product Development.

PRODUCT DEVELOPMENT DEPARTMENT (Z-1)*Professional R & D Staff:*

Scientists: Chemistry 2.

Engineers: Chemical 1, Mechanical 3, Textile 1.

Scientific and Product Fields of R & D.

Forming Fabrics for Fourdrinier Paper Machines, Wet Felts for Paper Machines, Dryer Fabrics for Paper Machines and De-watering Equipment for Fourdrinier Paper Machines.

284. IMPERIAL OIL LIMITED.

111 St. Clair Avenue, Toronto 7, Ontario.

W. O. Twaits, President.

G. W. Gurd.

284A. BUSINESS DEVELOPMENT DEPT. (Y-1, Z-1)

Calgary, Alberta.

E. D. Wilson, Manager.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 1.

Engineers: Chemical 7, Mechanical 3, Mining 1.

Scientific and Product Fields of R & D.

Engineering and Technology — Petroleum, and Mining, extraction of mineral fuels.

284B. PRODUCTION RESEARCH AND TECHNICAL SERVICES DEPT. (Y-1, Z-1)

Calgary, Alberta.

V. C. Larson, Manager.

Professional R & D Staff:

Scientists: Chemistry 3, Physics 3.

Engineers: Chemical 6, Civil 1, Electrical 1, Mechanical 3, Mining 1, Petroleum 2.

Scientific and Product Fields of R & D.

Scientific Fields — Engineering and Technology — Petroleum, Natural Sciences — Chemistry, Mathematics, Engineering and Technology — Chemical, Mechanical, Electrical and Electronic, Civil. Product Groupings — Petrochemicals.

285. IMPERIAL OIL ENTERPRISES LIMITED.

111 St. Clair Avenue, Toronto, Ontario.

W. O. Twaits, President.

G. W. Gurd.

285A. ENGINEERING DIVISION. (Z-1)

Sarnia, Ontario.

J. C. Maguire, Manager.

Professional R & D Staff:

Engineers: Chemical 11, Mechanical 1.

Scientific and Product Fields of R & D.

Petroleum Refining Industrial Chemicals.

285B. EXPLORATION — RESEARCH DEPARTMENT. (X-1, Y-1, Z-1)

Calgary, Alberta.

D. K. McIvor, Manager.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 22.

Scientific and Product Fields of R & D.

Natural sciences — Geology and other earth sciences, Engineering and technology — Petroleum, Natural science — Physics, Mathematics. Engineering and technology — Electrical and Electronics, Natural sciences — Chemistry.

285C. FLUID IRON ORE REDUCTION PROJECT. (Y-1)

Dartmouth, Nova Scotia.

J. W. K. Moores, Operations Superintendent.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 15, Mechanical 7, Metallurgical 1.

Scientific and Product Fields of R & D.

Scientific Fields — Engineering and Technology — Metallurgy. Product Groupings — Primary ferrous Metals.

285D. P.V.C. APPLICATIONS LABORATORY. (Y-1, Z-1)

Sarnia, Ontario.

N. S. Sampson.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Scientific Fields — Engineering and Technology — Plastics, and Product Groupings. Plastics and synthetic resins.

285E. RESEARCH DEPARTMENT. (X-1, Y-1, Z-1)

Sarnia, Ontario.

G. W. Gurd, Manager.

Professional R & D Staff:

Scientists: Chemistry 47.

Engineers: Chemical 13.

Scientific and Product Fields of R & D.

Scientific Fields: Natural Sciences — Chemistry Engineering and Technology — Chemical.

Product Groupings: Petroleum and coal processes — Petroleum — refining Petrochemicals and Chemicals and Chemical Products Plastics and synthetic resins.

286. IMPERIAL TOBACCO COMPANY OF CANADA LIMITED.

3810 St. Antoine St., Montreal, Que.

J. M. Keith, President.

L. C. Laporte, Vice-Pres., Research & Development.

IMPERIAL TOBACCO CO. RESEARCH & DEVELOPMENT BUILDING (X-1, Y-1, Z-1)

734 Bourget St., Montreal.

L. Rowell, Chief Engineer - Development.

R. S. Wate, Mgr. Research Dev. & Tech. Ser.

Professional R & D Staff:

Scientists: Agriculture 3, Biology 1, Chemistry 14, Physics 1 and Psychology 1.

Engineers: Chemical 1, Electrical 2, Electronic 1 and Mechanical 7.

Scientific and Product Fields of R & D.

Tobacco and tobacco smoke, filtration of smoke, subjective evaluation of taste and flavour, packaging, wines, development of new machinery and processes.

287. INDUSTRIAL ADHESIVES LIMITED.

90 Tycos Drive, Toronto 19, Ont.

C. Kalthoff, President.

D. L. Adam, Vice-Pres. and Tech. Director.

LABORATORY OF INDUSTRIAL ADHESIVES LIMITED (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Coatings and laminations, solvent based resins and hot melts.

288. INTERCHEM CANADA LIMITED. (Y-1, Z-1)

82 Peter Street, Toronto, Ontario.

R. C. Gravenkemper, President.

C. A. Huff, Manager Manufacturing.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

Products and process studies for the surface coating, printing ink and dispersion field.

288A. LABORATORY — WINDSOR LOCATION. (Y-1, Z-1)

845 Wyandotte Street West, Windsor, Ontario.

L. S. Hughes, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 4.

Engineers: 2.

Scientific and Product Fields of R & D.

Protective Coatings for Automotive, Industrial, and Trade Sales.

289. INTER-CONTINENTAL SCIENTIFIC & TECHNICAL ADVICE BUREAU LTD. (X-2, Y-2, Z-2)

133 Sheppard Avenue East, Willowdale, Ont.

J. Fletcher, President.

Professional R & D Staff:

Scientists: Physiologist 1.

Engineers: Industrial 1.

Scientific and Product Fields of R & D.

Aerospace physiology (space and military)

Industrial physiology (heavy industry)

Human factors

Personnel protection.

290. INTERNATIONAL BUSINESS MACHINES CO. LTD.

1150 Eglinton Avenue East, Don Mills, Ont.

J. E. Brent, President.

B. B. Goodfellow, Manager Laboratory.

IBM CANADA LABORATORY (Z-1)

844 Don Mills Rd., Don Mills, Ont.

Professional R & D Staff:

Scientists: Chemistry 2, Geology & other Earth Sciences 1, Mathematics 14, Physics 5 and Other 3.

Engineers: Chemical 2, Civil 2, Electrical 7, Electronic 10, Mechanical 3, Mining 2 and Eng. Phys. 3.

Scientific and Product Fields of R & D.

Hardware and software for the computer and data processing market.

291. INTERNATIONAL CELLULOSE RESEARCH LIMITED. (X-1, Y-1, Z-1)

Hawkesbury, Ontario.

G. D. Hughson, President.

F. R. Charles, Vice-President & Director of Research.

Professional R & D Staff:

Scientists: Biology 4, Chemistry 28, Physics 2, Library 2.

Engineers: Chemical 25, Mechanical 4.

Scientific and Product Fields of R & D.

Wood pulp, Paper and Board, Cellulose Derivatives, By-products of wood pulp manufacturer and Non-wovens.

292. INTERNATIONAL COOPERAGE COMPANY OF CANADA LTD. (Y-1, Z-1)

P.O. Box 27, Niagara Falls, Ontario.

N. F. Flanigan, Vice-President and General Manager.

C. Santoni, Engineer.

Stoney Creek, Ontario.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Containers and light metal products.

293. INTERNATIONAL COOPERATIVES LTD.

1700 Portage Ave., Winnipeg 12, Manitoba.

H. A. Scott, Chief Executive Officer.

B. B. Marantz, Gen. Mgr. Chemicals Division.

R & D DEPARTMENT (Y-1, Z-1)

J. R. Monteith, Manager, R & D Department.

Professional R & D Staff:

Scientists: Agriculture 2 and Chemistry 2.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

Agricultural Chemicals (herbicides & insecticides) and processes for production (Agricultural & Industrial Chemicals).

294. INTERNATIONAL HARVESTERS CO. OF CANADA LTD.

208 Hillyard Street, Hamilton, Ontario.

C. C. Brannan, President.

W. D. Drummond, Vice-President.

294A. HAMILTON WORKS ENGINEERING DEPT. (Y-1, Z-1)

208 Hillyard St., Hamilton, Ont.

R. E. Penfold, Manager of Engineering.

Professional R & D Staff:

Engineers: Mechanical 19 and Engineering Physics 1.

Scientific and Product Fields of R & D.

Farm Equipment — New Concepts and Product Development.

294B. CHATHAM WORKS ENGINEERING DEPT. (Y-1, Z-1)

Richmond Street, Chatham Ontario.

R. E. Penfold, Manager of Engineering.

Professional R & D Staff:

Engineers: Mechanical 6.

Scientific and Product Fields of R & D.

Motor Trucks — Product Development.

295. THE INTERNATIONAL NICKEL CO. OF CANADA, LTD.

Toronto-Dominion Centre, Toronto 1, Ontario.

H. S. Wingate, Chairman.

Louis S. Renzoni, Vice-Pres., Process Research.

295A. PORT COLBORNE RESEARCH STATIONS. (Y-1, Z-1)

Port Colborne, Ontario.

M. Head, Superintendent.

Professional R & D Staff:

Engineers: Chemical 2 and Metallurgical 16.

Scientific and Product Fields of R & D.

No. 1 Research Station conducts investigations into proprietary processes for the treatment of ores, concentrates and intermediate products from mines, mills, smelters and refineries.

No. 2 Research Station studies various processes for nickel extraction from ores by pyro metallurgical techniques. No. 3 Research Station studies hydro metallurgical processes for the recovery of nickel and associated values from ores, the treatment of intermediate products from existing concentrates and smelter operations and a wide range of leaching operations. The Research Laboratory investigates new and improved processes for the refining of nickel, cobalt and precious metals and develops new products from the basic nickel form.

295B. COPPER CLIFF (GEOLOGICAL). (X-1, Y-1, Z-1)

Copper Cliff, Ontario.

G. Colgrove, Chief of Geological Research.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 22.

Scientific and Product Fields of R & D.

Laboratory and field studies related to geological, mineralogical and metallurgical problems on Canadian and foreign samples and basic research on the geochemistry of nickel. Geophysical research is involved mainly with the installation and testing of improved and new devices including special research projects.

295C. COPPER CLIFF (RESEARCH LAB.). (Y-1, Z-1)

Copper Cliff, Ontario.

M. Sopko, Research Superintendent.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Mechanical 1, Metallurgical 8, Mining 4.

Scientific and Product Fields of R & D.

The fields of research are concerned with the technical problems which arise in the operations of mills, smelters, refineries and the development of improved processes.

295D. MANITOBA DIVISION. (Y-1, Z-1)

Thompson, Manitoba.

B. Brandt, Research Chemist.

Professional R & D Staff:

Scientists: Chemistry 3.

Engineers: Chemical 2, Metallurgical 2.

Scientific and Product Fields of R & D.

Various research projects are undertaken through pilot plant and direct investigation into improving existing processes.

295E. J. ROY GORDON LABORATORY. (X-1, Y-1, Z-1)

Sheridan Park, Mississauga, Ontario.

C. E. O'Neill, Director.

Professional R & D Staff:

Scientists: Chemistry 15, Geology & other Earth Sciences 3.

Engineers: Metallurgical 11, Mining 2.

Scientific and Product Fields of R & D.

Development of new metallurgical processes for the extraction of valuable constituents from ores of interest to Inco. The scientific fields involved include minerals beneficiation, hydro metallurgy, vapo-metallurgy, electro chemistry, pyro metallurgy, precious metals extraction and analysis, and geological research.

296. INTERNATIONAL SYSTCOMS LIMITED. (Y-1, Z-1)

4900 Fisher St., St. Laurent, Quebec.

J. E. Conner, President.

S. Purich, Chief Development Engineer.

Professional R & D Staff:

Engineers: Electronic 8.

Scientific and Product Fields of R & D.

Design and development of transistorized radio-telephone communications equipment. This equipment is used in both public and private mobile systems and operates on both VHF and UHF frequencies.

297. INTERPROVINCIAL CO-OPERATIVES LIMITED.

1700 Portage Avenue, Winnipeg 12, Man.

Mr. H. A. Scott, Chief Executive Officer.

Mr. B. B. Marantz, General Manager, Chemicals Div.

RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1)

Mr. J. R. Monteith, Manager, Research & Develop. Dept.

Professional R & D Staff:

Scientists: Agriculture 2, Chemistry 2.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

Agricultural Chemicals (Herbicides and Insecticides and Processes for Production of Agricultural and Industrial Chemicals).

298. ION EXCHANGE (CANADA) LIMITED.

185 Bay Street, Toronto 1, Ontario.

A. Himsley, President.

ION EXCHANGE (CANADA) LIMITED (Z-1)

1040 Martingrove Road, Rexdale, Ontario.

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 4.

Scientific and Product Fields of R & D.

Ion Exchange Processes and Filtration of Water.

299. JOHNSON & JOHNSON LIMITED.

2155 Pie IX Blvd., Montreal 4, Que.

W. H. Norman, President.

G. Lee, Vice-President, Research & Development.

JOHNSON & JOHNSON RESEARCH CENTRE (Y-1, Z-1)

7101 Notre Dame St. East, Montreal 5, Que.

Professional R & D Staff:

Scientists: Chemistry 5, Biologist 1.

Engineers: Chemical 5, Mechanical 1, Textile 1.

Scientific and Product Fields of R & D.

Toiletry & Proprietary Products, Surgical Dressing Products, Health Care Products and Nonwoven Textiles.

300. JOHNSON MATTHEY & MALLORY LIMITED. (Y-1, Z-1, Z-2)

110 Industry Street, Toronto 15, Ontario.

J. E. Shirreff, President.

P. L. Bourgault, Manager Electronic Div.

Professional R & D Staff:

Scientists: Physics 1, Electro Chemical 2.

Engineers: Mechanical 2, Metallurgical 1.

Scientific and Product Fields of R & D.

Capacitors and Mechanical Engineering — Electrical contacts.

301. JOHNSON WIRE WORKS LIMITED. (Y-1, Z-1)

530 De Courcelles Street, Montreal 30, P.Q.

H. Johnson, President.

J. G. Buchanan, Vice-President. R & D.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Mechanical 1, Metallurgical 1.

Scientific and Product Fields of R & D.

Metallurgy, Physics, Chemistry, Paper Machine Wire Cloth and Plastic Cloth and Drainage Equipment.

302. KALIUM CHEMICALS LIMITED.

400 Bank of Canada Building, Regina, Saskatchewan.

B. R. Willett, President.

E. P. Helvenston, Research Director.

KALIUM RESEARCH LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3, Physics 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Chemistry, Chemical Engineering, Applied Mathematics, Physics, Geology, Metallurgy and Principally — Potash.

303. KAMECO ELECTRONICS LIMITED. (Y-1, Z-1, X-2, Y-2, Z-2)

1080 Port Royal W. Montreal, 355, P.Q.

L. K. Walch, President.

R. Mudd, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 6.

Scientific and Product Fields of R & D.

Digital and Analogue Equipment for the telecommunications and data processing industry system Development and telephone alarm reporting system.

304. KATES, PEAT, MARWICK & COMPANY. (X-1, X-2, Y-2, Z-2)

4 King Street, West, Toronto 1, Ontario.

G. H. Cowperthwaite

J. Kates.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 2, Mathematics 1, Medicine & Dentistry 1, Pharmacy 1, Physics 1.

Engineers: Civil 9, Aeronautical 1, Electrical 1, Electronic 1, Mechanical 3.

Scientific and Product Fields of R & D.

Transportation, Airport Planning, Resource Development and Computer Technology.

305. KAWNEER COMPANY CANADA LIMITED.

1051 Ellesmere Road, Scarborough, Ontario.

V. B. Evans, Vice-President & General Manager.

V. Alter, Manager of Engineering.

EXPERIMENTAL & TESTING (Y-1, Z-1)

M. Maciedrewski, Product Engineer.

Professional R & D Staff:

Engineers: Aeronautical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Architectural Metal Products for Building enclosures.

306. KAYSON PLASTICS & CHEMICAL LIMITED.

1790 Eagle Street, Preston, Ontario.

H. Lazzarotto, General Manager.

G. Detlor, Research Manager.

R & D DEPARTMENT KAYSON (Z-1)

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Graft Polymerization Rubber Modified Styrene, Acrylonitrile and Methyl Methacrylate and Glass Fibre Fortified Thermoplastics.

307. KEARNEY-NATIONAL (CANADA) LIMITED. (Z-1)

430 Elizabeth Street, Guelph, Ontario.

G. R. Raisbeck, President.

J. R. McMullan, Chief Engineer.

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Extra High Voltage Disconnect Switches, Mechanical and Dielectric up to 765 KV AC and DC and Lower voltage Disconnect Switches up to 230 KV AC.

308. KEEPRITE PRODUCTS LIMITED.

44 Elgin Street, Brantford, Ontario.

J. G. McMillen, President.

N. W. Woods, Vice-President, Engineering.

308A. KEEPRITE PRODUCT DEVELOPMENT DEPARTMENT. (Y-1, Z-1, Z-2)

Professional R & D Staff:

Scientists: Mathematics 1.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Thermodynamics, Electronics, Metallurgy and Air Conditioning, Refrigeration, Heating & Ventilation for the Commercial, Industrial and Residential fields.

308B. UNIFIN RESEARCH & DEVELOPMENT DEPARTMENT. (Y-1, Z-1, Z-2)

1030 Clarke Side Road, London, Ontario.

J. C. Richardson, Supervisor, Research & Development.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Scientific Field: Heat Transfer.

Product Groups: Electrical apparatus cooling, Oil, chemical & gas industry exchangers, Industrial air heating & cooling, and Nuclear power developments.

309. GEORGE KELK LIMITED. (Y-1, Z-1, Y-2, Z-2)

48 Lesmill Road, Don Mills, Ontario.

G. F. Kelk, President.

A. C. Sharp, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.

Sensors for physical processes, particularly those in heavy industry Electrical, mechanical and optical sensing with electrical and electronic data processing.

310. KEMP PRODUCTS LIMITED. (Z-1)

1881 Huron Street, P.O. Box 4154, Station C. London, Ont.

P. G. Kemp.

P. S. Bazott, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Petroleum 1.

Scientific and Product Fields of R & D.

Returnable Plastic Containers, Disposable Plastic Containers, Plastic Bottle Caps and Closures and Plastic Sports Equipment.

311. KINDRED INDUSTRIES LIMITED. (Z-1)

Kindred Road, Midland, Ontario.

R. Hartog, President.

Professional R & D Staff:

Scientists: Economist 2.

Engineers: Chemical 1, Metallurgical 1.

Scientific and Product Fields of R & D.

New products using deep drawing of metal process including coating of material when required.

312. KLEEN-FLO CORPORATION. (X-1, Y-1, Z-1, Z-2)

8677 Delmeade Road, Montreal 9, Quebec.

M. H. Brotman, President.

B. Stramwasser, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Household, Automotive and Industrial chemicals and fuel oil additives and Specialty Products.

313. KOEHRING WATEROUS LIMITED. (Y-1, Z-1)

Box 490, Brantford, Ontario.

P. A. Huffaker, President and General Manager.

J. J. Denogan, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 4.

Scientific and Product Fields of R & D.

Mechanical Pulping and Pulp Grinders, and Forest Mechanization and Pulpwood Harvesting Equipment.

314. KOLMAR OF CANADA LIMITED. (X-1)

149 Victoria Street, Barrie, Ontario.

H. Groh, President.

R. Card, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

New cosmetic and chemical products containing a breathing apparatus allowing an exchange of carbon dioxide for absorbed oxygen.

315. JOHN LABATT LIMITED.

150 Simcoe Street, London, Ontario.

J. H. Moore, Chairman & President.

J. A. Pearce, Administrative Scientific Services.

315A. ANIMAL SCIENCE, SCIENTIFIC CENTER. (Y-1, Z-1)

I. R. Sibbald, Director, Animal Science.

Professional R & D Staff:

Scientists: Agriculture 2, Chemistry 1.

Scientific and Product Fields of R & D.

Feed additives to improve productivity in cattle and sheep.

315B. BEVERAGE SCIENCE CENTER. (Y-1, Z-1)

150 Simcoe Street, London, Ontario.

B. Shelton, Manager, Beverage Science.

Professional R & D Staff:

Scientists: Chemistry 3, Food 1.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Chemistry and microbiology of beer and wine.

315C. MICROBIOLOGICAL SCIENCE, SCIENTIFIC CENTER. (Y-1, Z-1)

150 Simcoe Street, London, Ontario.

M. F. Walmsley, Director, Microbiological Science.

Professional R & D Staff:

Scientists: Biology 5, Chemistry 4.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Food and feed additives through fermentation processes.

316. LABORATOIRES FRANCA INC. (Y-1, Z-1, Y-2, Z-2)

920 Port Royal East, Montreal 358, P.Q.

André Riendeau, President.

François Morin, Technical Director.

Professional R & D Staff:

Scientists: Pharmacy 1.

Scientific and Product Fields of R & D.

Quinoline by-products, Cardiovascular diabetology.

317. LACAL INDUSTRIES LIMITED.

56 Charles Street, Newmarket, Ontario.

G. D. Zimmerman, President.

R. C. Walker, Chief Product Engineer.

ENGINEERING TEST LAB. (Y-1, Z-1)

56 Charles Street, Newmarket, Ontario.

Professional R & D Staff:

Engineers: Electrical 2, Mechanical 3.

Scientific and Product Fields of R & D.

Corona Free hardware used for the extra high Voltage transmission project and Wind induced vibration affecting conductor (EHV transmission projects).

318. LAKE DUFAULT MINES LIMITED.

7 King St. E., Toronto, Ontario.

J. R. Smith, President.

J. M. Mortimer, Metallurgical Engineer.

LAKE DUFAULT MINES LIMITED-CONCENTRATOR (Z-1)

P.O. Box 2000, Noranda, Quebec.

W. H. A. Timm, Mill Superintendent.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 1.

Engineers: Electrical 1, Metallurgical 2.

Scientific and Product Fields of R & D.

Development of a flotation process.

319. LAKEFIELD RESEARCH OF CANADA LIMITED.

2100 - 7 King Street East, Toronto, Ontario.

G. T. N. Woodrooffe, President.

A. G. Scobie, Manager.

LAKEFIELD RESEARCH OF CANADA LIMITED (Y-1, Z-1, Y-2, Z-2)

P.O. Box 430, Lakefield, Ontario.

D. M. Wyslouzil, Chief Metallurgist.

Professional R & D Staff:

Scientists: Chemistry 1, Geology & other Earth Sciences 1.

Engineers: Chemical 1, Metallurgical 3.

Scientific and Product Fields of R & D.

Mineral processing research and flowsheet development of ores and non-metallic minerals.

320. LALLEMAND INCORPORATED.

1620 Prefontaine Street, Montreal, P.Q.

R. Chagnon, President.

V. Cherney, Vice-President.

320A. LALLEMAND LABORATORIES. (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Fermentation industry — production of yeast, fondants, jams, and pie fillings, etc.

320B. LALLEMAND INCORPORATED PLANT.

St. Ignace Street, Laprairie, P.Q.

W. Sutton, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Bakery products, fondants, jams, pie fillings, etc.

321. LALONDE, VALOIS, LAMARRE, VALOIS ASSOCIATION. (Y-1, Y-2)

615, rue Belmont, Montreal 101, Que.

B. Lamarre.

Professional R & D Staff:

Scientists: Mathematics 2, Physics 1.

Engineers: Civil 8, Electrical 1, Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.

Construction cost of public, municipal and private works, and computer analysis to optimize schedules systems, etc.

322. LAMB-CARGATE INDUSTRIES LIMITED. (Z-1)

1135 Queens Avenue, New Westminster, B.C.

P. G. Kendrick, Vice-President, General Manager.

J. M. Yowell, Manager of Engineering.

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Equipment to be used in the Forest Product Industries.

323. LARSON WOODLANDS RESEARCH LIMITED.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2)

Oliver Road, P.O. Box 206, Port Arthur, Ont.

R. W. Larson.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Development of and mechanization of the Woods Industry.

324. LASALLE HYDRAULIC LABORATORY LIMITED. (X-2, Y-2, Z-2)

0250 St. Patrick, Lasalle, P.Q.

E. Pariset, President.

R. Hausser, Vice-President & Technical Manager.

Professional R & D Staff:

Engineers: Electrical 1, Fluid Mechanic 11.

Scientific and Product Fields of R & D.

Fluid mechanic, Hydraulic measurements, Governing equipments, Mathematical and physical models, Problems of cavitation, vibration, mixing, separation, heat exchanges, pipeline transportation of solids, navigation, air and water pollution and automatic control.

325. LAURENTIAN LABORATORIES LIMITED.

70 Hymus Blvd., Pointe Claire, P.Q.

G. J. Odell, President.

J. A. McCoubrey.

CONTROL DEPARTMENT (Z-1)

P. W. Pidoux, Supervisor, Control Department.

Professional R & D Staff:

Scientists: Chemistry 4, Pharmacy 1.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Manufacture of dosage forms of health and beauty aids and standard pharmaceutical items.

326. LEIGH INSTRUMENTS LIMITED.

P.O. Box 820, Carleton Place, Ont.

J. J. Shepherd, President & General Manager.

J. R. B. Steacie, Vice-Pres. & Director of Eng.

326A. ENGINEERING DEPARTMENT. (Y-1, Z-1, Y-2, Z-2)

J. R. B. Steacie.

Professional R & D Staff:

Scientists: Physics, 1.

Engineers: Aeronautical 1, Chemical 1, Electronic 20, Mechanical 6.

Scientific and Product Fields of R & D.

Electronics & electrical engineering, Military and Aircraft Product Oriented, Data recording systems & data processing, instrumentation engineering, servo mechanisms, display, flight instruments, radio frequency engineering—HF, VHF, UHF; transmitters receivers, antennae, aerodynamics, store loads and performance, plastic foam technology.

326B. SPECIAL PRODUCTS DEPARTMENT. (Y-1, Z-1, Y-2, Z-2)

M. Price, Manager.

Professional R & D Staff:

Engineers: Electrical 4, Mechanical 1.

Scientific and Product Fields of R & D.

Commercial Product Oriented—Electronics & electrical engineering, computer systems and data processing, measurements in liquid metals, air and water pollution, instrumentation, microwave & radar-based instruments.

327. ERNST LEITZ (CANADA) LIMITED. (Y-1, Z-1, Y-2, Z-2)

122 Ellen Street, Midland, Ontario.

W. Mandler, Vice-President, R & D.

Professional R & D Staff:

Scientists: Mathematics 1, Physics 2.

Engineers: Electronic 1, Mechanical 3.

Scientific and Product Fields of R & D.

Optical Design, Design of Still and Movie cameras and design of Fire Control Instruments.

328. LENKURT ELECTRIC COMPANY OF CANADA LTD. (Y-1, Z-1, Y-2)

7018 Loughheed Highway, Burnaby 2, B.C.

H. R. Herron, President.

R. L. Weeks, Engineering Branch Manager.

Professional R & D Staff:

Engineers: Electronic 30.

Scientific and Product Fields of R & D.

Telecommunications Devices and Data Transmission-Digital-Analog.

329. LEPAGE'S LIMITED.

404 Kipling Avenue, South, Toronto 18, Ontario.

B. E. Newey, President.

J. A. Fernandez, Technical Manager.

RESEARCH DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Adhesives.

330. LETSON & BURPEE LIMITED. (Y-1)

172 Alexander Street, Vancouver 4, B.C.

G. M. Letson, President.

S. Masse, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Lumber Sorting Equipment, High Strain sawing — Bandmill and Testing & Development work on Mill Chain.

331. LEVER BROTHERS LIMITED.

1 Sunlight Park Road, Toronto 8, Ontario.

J. Lockwood, President.

S. O. Winthrop, Director of R & D.

RESEARCH AND DEVELOPMENT DIVISION (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 12.

Engineers: Chemical 6.

Scientific and Product Fields of R & D.

Detergent Products, Edible Fats and Oils, Bar Soaps, Packaging Materials, Industrial Chemicals and Wax Polishes.

332. LEVY INDUSTRIES LIMITED.

1400 Weston Road, Toronto 9, Ontario.

M. A. Levy, Chairman of the Board.

CANADIAN ACME SCREW & GEAR LTD. (Y-1, Z-1, Z-2)

207 Weston Road, Toronto 9, Ontario.

J. H. Miura, Manager, Product Development.

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 6, Metallurgical 1.

Scientific and Product Fields of R & D.

Automotive & Agricultural type transmissions, Floor Polisher Gear Boxes and Axial Piston pumps and motors.

333. LIBBY, McNEILL & LIBBY OF CANADA LIMITED.

330 Richmond Street, Chatham, Ontario.

C. J. New, President & Managing Director.

R. J. Hall, Ag. Research Manager.

AGRICULTURAL RESEARCH DEPARTMENT (Y-1)

Professional R & D Staff:

Scientists: Agriculture 1.

Scientific and Product Fields of R & D.

Raw Product Research — Vegetables.

334. LIGHTNING FASTENER COMPANY LIMITED. (Y-1, Z-1)
50 Niagara Street, St. Catharines, Ontario.D. S. P. Conner, Vice-President & General Manager.
P. E. Johnson, Manager of Engineering.*Professional R & D Staff:*

Engineers: Chemical 2, Mechanical 2.

Scientific and Product Fields of R & D.

Designs of closures for clothing and equipment and methods of manufacturing, types and methods of metal finishes, all phases of printed circuit manufacturing technique, snap fasteners and other clothing closures and in powdered metallurgy.

335. LIGNOSOL CHEMICALS LIMITED.

P.O. Box 2025, Quebec 2, Quebec.

H. Elgee.

K. F. Keirstead.

TECHNICAL DEPARTMENT (Y-1)

M. J. Giguere, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Lignosulphonates — Dispersing agents and binders, Surface active agents, Chemical products from spent sulphite liquor.

336. THOMAS J. LIPTON LIMITED. (Y-1, Z-1)

2200 Yonge Street, Toronto, Ontario.

R. K. Porter, President.

R. L. Maurer, Director of Technical Research.

Professional R & D Staff:

Scientists: Agriculture 1, Chemistry 2.

Scientific and Product Fields of R & D.

Food Technology on Dry and Processed Foods; Frozen Products.

337. LITTON SYSTEMS (CANADA) LIMITED. (Y-1, Z-1, Y-2, Z-2, Y-3)

25 City View Drive, Rexdale, Ontario.

J. M. Bridgman, President.

L. A. Borth, Director of Engineering.

Professional R & D Staff:

Scientists: Chemistry 1, Mathematics 2, Physics 5.

Engineers: Aeronautical 2, Electrical 17, Mechanical 2.

Scientific and Product Fields of R & D.

Inertial Navigation, Airborne Digital Computers, Airborne Analogue Computers, Automatic Testing, Pattern Recognition, Gas Bearing Technology and Prosthetic Devices.

338. LONG MANUFACTURING DIVISION BORG-WARNER (CAN) LTD. (Y-1, Z-1)

656 Kerr Street, Oakville, Ontario.

J. H. McCreery, President & General Manager.

D. M. Donaldson, Director Engineering.

Professional R & D Staff:

Engineers: Aeronautical 1, Mechanical 3.

Scientific and Product Fields of R & D.

Heat Exchanger, Radiators, Oil Coolers, Evaporator and Condenser Coils and Non-Ferrous Metal Joining and Fabricating and assembly Manufacturing Processes.

339. LUCAS-ROTAX LIMITED.

5595 Royalmount, Montreal 9, P.Q.

I. J. Hulbert, Vice-President & General Manager.

W. I. Mackie, Commercial & Engineering Manager.
(Y-1, Z-1, Z-2)

T. J. Pantou, Deputy Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 7.

Scientific and Product Fields of R & D.

Hydro mechanical servo systems and subsystems related to high pressure fuel metering for gas turbines, high speed high pressure pumping elements used with above, and fuel nozzles for atomizing fuel in gas turbine engine combustion chamber.

340. THE LUMMUS COMPANY CANADA LIMITED.

550 Sherbrooke Street West, Montreal, Que.

H. J. Whelan, Vice-President & General Manager.

R. D. Robson, Manager of Operations.

ENGINEERING DESIGN ORGANIZATION (Z-1, Z-2)

M. Simmer, Chief Process Engineer.

Professional R & D Staff:

Engineers: Chemical 6, Electrical 1, Mechanical 5.

Scientific and Product Fields of R & D.

Organic Chemical Recovery Processes, Waste Gas Recovery and Purification, Petroleum Chemicals Processing and Process Equipment Design.

341. LUNDRIGANS LIMITED.

Riverside Drive, Corner Brook, Newfoundland.

Ernest A. Leja, P.Eng.

Thomas Beresford, Manager of Quality Control.

CONCRETE TESTING AND RESEARCH LABORATORIES
(X-1, Y-1, Z-1, Y-2)

St. John's, Nfld.; White Hills, Corner Brook, Nfld.

Professional R & D Staff:

Engineers: Civil 2.

Scientific and Product Fields of R & D.

Geological research in respect to availability and quality of concrete aggregates, Testing of raw materials for concrete and asphalt work, Research in application of precast-prestressed concrete and Research in clay and clay products.

342. MacMILLAN BLOEDEL LIMITED.

1199 West Pender Street, Vancouver 1, B.C.

Hon. J. V. Clyne.

L. A. Cox, Director of Research.

MacMILLAN BLOEDEL RESEARCH LIMITED (X-1, Y-1, Z-1)

3350 East Broadway, Vancouver 12, B.C.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 26, Physics 2.

Engineers: Chemical 4, Civil 2, Forestry 4.

Scientific and Product Fields of R & D.

Wood and Wood Products, Pulp and Paper Products and Packaging.

343. MacNAUGHTON-BROOKS LIMITED. (Y-1, Z-1)

3637 Weston Road, Weston, Ontario.

Martin P. MacNaughton, President.

Thomas M. Callaghan, Director Research.

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

Polymer Research, Flooring Systems Development, Coating Systems Development, Adhesives Development, and Fluid Roofing Systems Development.

344. MALLINCKRODT CHEMICAL WORKS LIMITED. (Y-1, Z-1)

600 Delmar Avenue, Pointe Claire, Quebec.

D. S. Calder, President.

L. Cooper, Operations Manager.

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Chemistry — Inorganic, Industrial, Engineering — Mechanical and Chemical, and Development in fields of iodine compounds, chemicals for agricultural food and pharmaceutical uses.

345. MALLORY BATTERY COMPANY OF CANADA LTD. (X-1, Y-1, Z-1)

2333 North Sheridan Way, Sheridan Park (Clarkson), Ont.

K. R. Brands, President & General Manager.

F. J. Kelly, Manager of Research.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Electrochemical power sources, Electrode Kinetics, Powder metallurgy of non-ferrous metals, Investigation of blending, flow properties and compacting of powders, and Corrosion and corrosion control.

346. THE MANITOBA SUGAR COMPANY LIMITED. (Y-1, Z-1)

Foot of Hervo Street, Winnipeg, Manitoba.

F. Rogers, President.

J. W. Hall, Research Agronomist.

Professional R & D Staff:

Scientists: Agriculture 2.

Scientific and Product Fields of R & D.

Food Products Agricultural Science Chemistry.

347. MANSFIELD-DENMAN GENERAL COMPANY, LIMITED. (Z-1, Z-2)

Welland, Ontario.

A. A. Carse, President.

M. K. Parrent, Chief Chemist.

Professional R & D Staff:

Scientists: Rubber Chemists 3.

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Rubber and Plastics.

348. MAPLE LEAF MILLS LIMITED.

417 Queen's Quay West, Toronto 2B, Ontario.

G. M. MacLachlan, President.

348A. AGRICULTURAL DIVISION RESEARCH GROUP. (Y-1)

W. D. Morrison, Director, Nutrition Research.

Professional R & D Staff:

Scientists: Agriculture 4.

Scientific and Product Fields of R & D.

Nutrition studies with poultry, swine, ruminants and mink, also disease prevention and control.

348B. CROP RESEARCH GROUP. (Y-1)

Master Feeds Research Farm, Georgetown, Ontario.

W. E. Sieveking, Director, Crop Research.

Professional R & D Staff:

Scientists: Agriculture 3.

Scientific and Product Fields of R & D.

Plant Breeding.

348C. RESEARCH DIVISION. (Y-1, Z-1)

43 Junction Road, Toronto 9, Ontario.

W. H. Hoffman, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Flour milling, baking, prepared foods and food mixes, pet foods, vegetable oils and paints.

349. MARGROUP LIMITED. (Y-1, Z-1, Y-2, Z-2, Y-3, Z-3)

57 Bloor Street West, Toronto, Ontario.

C. F. T. Rounthwaite, President.

W. J. Milhausen, Director, Technical Programmes.

Professional R & D Staff:

Engineers: Civil 1, Architects 3.

Scientific and Product Fields of R & D.

Application of computer technology to the fields of Architecture and Engineering to assist in design.

350. MARS LAND ENGINEERING LIMITED.

350 Weber Street North, Waterloo, Ontario.

S. Marsland, President.

L. H. Marsland, Vice-President, Engineering.

APPLIED RESEARCH AND DEVELOPMENT CENTRE
(Y-1, Z-1, Y-2, Z-2)

A. S. Armstrong, Supervisor, Project Eng. Sec.

Professional R & D Staff:

Engineers: Electrical 3, Electronic 3, Mechanical 2, Eng. Physics 1.

Scientific and Product Fields of R & D.

Fixed Program Computers (analog and digital), Electro-Optical Displays, Interior Communication Systems, Electro-Mechanical Recorders and Acoustical Devices.

351. MASSEY FERGUSON INDUSTRIES LTD.

915 King St. West., Toronto, Ontario.

A. A. Thornbrough, President.

A. F. Dewsberry, Chief Engineer.

351A. HARVESTING SYSTEMS LABORATORY. (Y-1, Z-1)

Massey-Ferguson Farm, Milliken, Ontario.

G. Cooper, Supervisor.

Professional R & D Staff:

Engineers: Mechanical, 5.

Scientific and Product Fields of R & D.

Threshing — Separation and Cleaning of various grain crops.

351B. LOGGING RESEARCH AND DEVELOPMENT. (Y-1, Z-1)

R.R. No. 1, Milliken, Ontario.

D. L. Spanjer, Logging Research & Development Mgr.

Professional R & D Staff:

Various from time to time.

Scientific and Product Fields of R & D.

Develop a full range of equipment for the mechanization of the logging industry.

352. M & T PRODUCTS OF CANADA. (Y-1 Z-1)

Box 211, Station 'C', Hamilton, Ontario.

R. D. Fraser, General Manager.

P. D. Goulden, Research Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Tin Chemistry.

353. MATHEWS CONVEYER COMPANY LTD.

Port Hope, Ontario, Canada.

O. H. McCleary, President.

W. S. Raynor, Director, Manager of Engineering.

R & D DEPARTMENT (Z-1)

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Package handling conveyers and special conveying machinery.

354. McCAIN FOODS LTD.

Florenceville, Carleton Co., N.B.

Harrison H. McCain.

Norman S. Singer, Research Director.

FOOD RESEARCH AND DEVELOPMENT LAB. (Y-1, Z-1)

Norman S. Singer, Research Director.

Professional R & D Staff:

Scientists: Food, 1.

Engineers: Civil 3, Electrical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Frozen fruit and vegetable products, snacks, and potato by-products.

355. B. J. McCOLL & COMPANY LIMITED. (Y-1, Z-2)

304 Dundas Street West, Whitby, Ontario.

B. J. McColl, President.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Woodlands Mechanization — Pulp and Paper Industry, Wide Range Mobility Vehicular Equipment, Processing Equipment and Material Handling and Transportation Equipment.

356. McCURDY RADIO IND. LTD. (Z-1)

108 Carnforth Road, Toronto 16, Ontario.

G. E. McCurdy, President.

A. C. Angus, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.

Advanced solid-state audio control devices, amplifiers, and consoles.

357. McNEIL LABORATORIES (CANADA) LIMITED. (X-1, Y-1, Z-1)

11 Greenbelt Drive, Don Mills, Ontario.

W. R. Ballantyne, President.

J. W. D. Cornett, Medical Director.

Professional R & D Staff:

Scientists: Pharmacy 1, Pharmacologist 1.

Scientific and Product Fields of R & D.

New Pharmaceutical products.

358. McPHAR GEOPHYSICS LIMITED. (Y-1, Z-1, Y-2, Z-2)

139 Bond Avenue, Don Mills, Ontario.

Philip G. Hallof, President.

W. A. Robinson, Chief Engineer.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 6.

Engineers: Electrical 2, Electronic 2.

Scientific and Product Fields of R & D.

Airborne, ground and drill hole methods and equipment used in locating base metal deposits, detection and non-destructive wire rope testing.

359. MEAD JOHNSON CANADA LIMITED.

95 St. Clair Avenue, W., Toronto 7, Ontario.

J. J. Rosseel, President.

L. A. Schnell, Director of Research.

MEAD JOHNSON DEPARTMENT OF RESEARCH (Z-1)

231 Dundas Street E., Belleville, Ontario.

Professional R & D Staff:

Scientists: Chemistry 1, Pharmacy 1.

Scientific and Product Fields of R & D.

Pharmaceutical and Nutritional products including Product formulation and stability testing, Package evaluation, Process improvement and Analytical Methods Development as required.

360. MEASUREMENT ENGINEERING LIMITED. (Z-1)

P.O. Box 850, Arnprior, Ontario.

J. B. Tunner, Vice-President.

K. Fristch

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.
Electrical Safety Devices.**361. MECHANICAL ENGINEERING ASSOCIATES. (X-2, Y-2, Z-2)**

22 Wallingford Road, Don Mills, Ontario.

F. P. J. Rimrott, Chief Engineer.

I. G. Currie.

Professional R & D Staff:

Engineers: Mechanical 5.

Scientific and Product Fields of R & D.
All fields of Mechanical Engineering.**362. MEDICINE HAT BRICK & TILE CO. LIMITED. (Y-1, Z-1)**

P.O. Box 70, Medicine Hat, Alberta.

G. H. Sissons, President & General Manager.

M. Shayna, Ceramic Research Engineer.

Professional R & D Staff:

Engineers: Ceramic 1.

Scientific and Product Fields of R & D.
Ceramic qualities and suitability of new clays for ceramic products, development of new ceramic products and improvement of existing products.**363. MERAND LIMITED.**

P.O. Box 1268, Kingston, Ontario.

J. S. Campbell, President & General Manager.

MERAND RESEARCH & DEVELOPMENT (Y-1, Z-1)

745 Gardiners Rd., Kingston, Ontario.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.
Equipment for University Research and Industrial Research.**364. MERCK FROSST LABORATORIES. (X-1, Y-1, Z-1)**

P.O. Box 1005, Montreal 3, P.Q.

R. S. Stuart, Director of Research.

Professional R & D Staff:

Scientists: Biochemists 3, Biology 7, Chemistry 20, Pharmacologists 3, Medicine 3, Pharmacy 8, Veterinarian 1.

Scientific and Product Fields of R & D.
Pharmaceuticals.**365. MERCURY VARNISH COMPANY LTD. (Z-1)**

5-9 Philip Street, St. Catharines, Ontario.

J. Hanson, Executive Vice-President.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.
Protective Coatings.**366. MESCHINO & ASSOCIATES LIMITED.**

6 Thorncliffe Square, Overlea Boulevard, Toronto 17, Ontario.

R. G. Meschino, Principal.

ENGINEERING LABORATORY (Z-1, Z-2)

10 Steelcase Road, Milliken, Ontario.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.
Research, test and development of components for the systems method of building. Research, test and development of new energy systems for building services.**367. MIDLAND-ROSS OF CANADA LIMITED.**

304 St. Patrick Street, LaSalle, Quebec.

R. E. Arbogast, Vice-President & General Manager.

J. L. Bryant, Chief Engineer.

R & D DEPARTMENT (Y-1, Z-1)

G. J. Kottick, Manager, Research and Development.

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 3.

Scientific and Product Fields of R & D.
Pulp and Paper and Industrial Ovens.**368. MILLHAVEN FIBRES LIMITED.**

800 Dorchester Blvd. W., Montreal.

D. S. Kirkbride, President.

L. G. Monton, Technical Director.

TECHNICAL DEPT. & PROCESS DEVELOPMENT SECTION

(Y-1, Z-1, Y-2, Z-2)

Millhaven, Ontario.

A. L. Promislow, Section Manager.

J. S. Little, Section Manager.

Professional R & D Staff:

Scientists: Chemistry 19, Physics 1, Library 1, Textile 2.

Engineers: Mechanical 3, Textile 3, Chemical 6.

Scientific and Product Fields of R & D.
Melt spun synthetic fibres; associated polymers and process aids.**369. MILLTRONICS LIMITED.**

730 The Kingsway, Peterborough, Ontario.

J. P. Gemmell, General Manager.

S. A. Sage, Manager Research & Development.

R & D DEPARTMENT (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Engineers: Chemical 1, Electrical 1, Electronic 1.

Scientific and Product Fields of R & D.
Industrial electrical and electronic apparatus, process controls and sensors.

370. MLW-WORTHINGTON LIMITED.

P.O. Box 1000, Place d'Armes, Montreal, Quebec.

H. Valle, President.

A. H. Paton, Director of Planning and Research.

CONTROL DEVELOPMENT LABORATORY (Y-1, Z-1)

1505 Dickson Street, Montreal, Quebec.

J. Williams, Supervisor.

Professional R & D Staff:

Engineers: Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.

Fluidic control systems for locomotives, diesel engines and steam and gas turbines.

371. MIMIK LIMITED.

Argyll Road, Galt, Ontario.

L. S. Magor, President.

J. A. Paxton, Chief Engineer.

DEVELOPMENT SHOP (Y-1, Z-1, Y-2, Z-2)

J. A. Paxton, Chief Engineer.

Professional R & D Staff:

Engineers: Metallurgical 1.

Scientific and Product Fields of R & D.

Hydraulic controls for machine tools. Hydraulic controls for road-paving machines. Development of hydraulic differential drive.

372. MINNESOTA MINING AND MANUFACTURING OF CAN. LTD. (Y-1, Z-1)

P.O. Box 5757, London, Ontario.

R. W. Keeley, Executive Vice-President & General Manager.

W. E. Sohl, Manager, New Product Development.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

New Product Development manufactured from chemicals, plastics, metal, paper and fibers or a combination of them for some useful purpose as contrasted to a decorative purpose.

373. THE ROBERT MITCHELL COMPANY LIMITED. (Y-1, Z-1)

350 Decarie Blvd., Montreal, Que.

G. H. Holland, Vice-President & General Manager.

U. A. Ranne, Manager, Research & Development.

Professional R & D Staff:

Engineers: 1.

Scientific and Product Fields of R & D.

Improved method of fabrication of light wall stainless steel pipe.

374. MOBIL PAINT COMPANY. (Y-1, Z-1)

645 Coronation Drive, Toronto, Ontario.

D. Lunny.

T. L. Armstrong, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

General Industrial Enamel Development and Coatings Development.

375. MOFFATS LIMITED.

Gibson & Wright Avenue, Weston, Ontario.

J. C. Cooper, President.

J. R. Wright, Vice-President Product Development.

PRODUCT DEVELOPMENT DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 2, Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.

Household Domestic Appliances and Commercial Cooking Equipment.

376. MOLSON BREWERIES OF CANADA LIMITED.

1555 Notre Dame St. East, Montreal 133, P.Q.

J. T. Black, President.

R. J. D. Martin, Vice-President, Production.

TECHNOLOGICAL RESEARCH & DEVELOPMENT
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

J. E. A. Van Gheluwe, Superintendent, T.R. & D.

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

Beer and ale, Brewing materials, Brewing methods, Byproducts of brewing, Flavour of beer and ale and Components of beer and ale.

377. MONARCH FINE FOODS COMPANY LIMITED.

195 Belfield Road, Rexdale, Ontario.

T. P. Snowden, President.

D. Brown, Technical Director.

MONARCH FINE FOODS CO. LIMITED (Y-1, Z-1)

397 Bayly Avenue, Ajax, Ontario,

B. J. Smith, Research & Development Chemist.

Professional R & D Staff:

Scientists: Chemistry 2, Plant Pathology 1.

Scientific and Product Fields of R & D.

Vegetable oil products and syrups.

378. MONARCH MACHINERY LIMITED.

889 Erin Street, Winnipeg 10, Manitoba.

E. J. Klassen, President.

H. H. Roeder, Chief Engineer.

ENGINEERING DEPARTMENT (Z-1)

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Various pumping equipment and oil hydraulic farm equipment.

379. MONSANTO CANADA LIMITED.

425 St. Patrick St., LaSalle, Quebec.

A. G. Erdman, President.

E. H. Toombs, Director, Process Technology & Engineering.

379A. MONSANTO CANADA LIMITED. (Z-1)

G. H. Ringrose, Manager, PT&E — Plastics.
J. Wheeland, Manager, PT&E — Chemicals & Resins.

Professional R & D Staff:

Scientists: Agriculture 1, Chemistry 5.
Engineers: Chemical 18.

Scientific and Product Fields of R & D.

Polystyrene and Polyvinyl chloride plastics. Chemicals — plasticizers, paper size, antioxidants, maleic anhydride. Resins — Phenol, urea, melamine, and formaldehyde.

379B. MONSANTO CANADA LIMITED. (Z-1)

457 Reynolds St., Oakville, Ontario.

M. Medgessy, Manager, PT&E.

Professional R & D Staff:

Scientists: Chemistry 1.
Engineers: Chemical 5.

Scientific and Product Fields of R & D.

Polyvinyl chloride coated fabric, film.

379C. MONSANTO CANADA LIMITED. (Z-1)

1550 Rand Avenue, Vancouver, B.C.

E. H. Hartz, Group Leader, PT&E.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 1.

Scientific and Product Fields of R & D.

Phenol, urea and formaldehyde resins.

379D. MONSANTO CANADA LIMITED. (Z-1)

8 Ave. North, Woodbridge, Ontario.

R. E. Jones, Manager, PT&E.

Professional R & D Staff:

Scientists: Chemistry 3, Physics 1.
Engineers: Chemical 5, Mechanical 1.

Scientific and Product Fields of R & D.

Polyurethane foam, polyvinyl chloride foam.

380. BENJAMIN MOORE & COMPANY LIMITED.

6 Lloyd Avenue, Toronto 9, Ontario.

R. A. Hicks, President.

E. S. Brough.

R & D LABORATORY (X-1, Y-1, Z-1)

E. Engel, Chief Research Chemist.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Basic Research in the field of Polymer Chemistry, Applied Research in the field of Resins and development to improve on the quality and characteristics of available resins.

381. MOOSEHEAD BREWERIES LIMITED.

P.O. Box 250, Station B, Saint John, West, N.B.

P. W. Oland, President.

W. F. Ryan, Chemist.

PLANT LAB (Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Brewing only.

382. MOTOR COACH INDUSTRIES LIMITED.

1149 St. Matthews Avenue, Winnipeg 19, Man.

H. Zoltok, President.

G. E. Mason, Chief Engineer.

EXPERIMENTAL DEPARTMENT (Z-1)

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

New intercity coach designs.

383. MUIRHEAD INSTRUMENTS LIMITED.

677 Erie Street, Stratford, Ontario.

R. W. Watler, Vice-President & Gen. Manager.

E. C. Ridgen, Chief Engineer.

R & D DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 3, Electronic 1.

Scientific and Product Fields of R & D.

Precision Electro-Mechanical Components.

384. NASHUA CANADA LIMITED.

550 Braidwood Avenue, Peterborough, Ontario.

K. R. Hines, President & General Manager.

G. S. Wade, Technical Manager.

TECHNICAL LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3, Physics 1.
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Coated papers of a wide range.

385. NATIONAL SEA PRODUCTS LIMITED.

P.O. Box 2130, Halifax, N.S.

R. G. Smith, President and Chief Executive Officer.

I. H. Langlands, Production Engineer.

NATIONAL SEA PRODUCTS DEVELOPMENT LAB. (Y-1, Z-1)

c/o High Liner Division of National Sea Products.

E. P. Sidaway, Chief.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 1.
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Food Technology (Seafoods, Batter and Breadings and cooked Fish Process Machinery).

386. NATIONAL SEMICONDUCTORS LIMITED.

2150 Ward Street, Montreal 9, Quebec.

D. A. Anderson, President.

R & D DEPARTMENT (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Scientists: Physics 4.
Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Performance and characteristics of CdS, CdSe, Si and related materials as photosensitive materials, Photodevices in general and Manufacturing devices for the company's own use.

387. NATIONAL STEEL CAR CORPORATION. (Z-1, Z-2)

Box 450, Hamilton, Ontario.

T. F. Rahilly, President & General Manager.

J. A. Aitken, Chief Engineer.

R. S. Butcher, Project Engineer.

Professional R & D Staff:

Engineers: Mechanical 4.

Scientific and Product Fields of R & D.

Freight cars and components and Rail and Road vehicles for the steel and mining industries.

388. NELSON BROTHERS FISHERIES LIMITED.

325 Howe Street, Vancouver 1, B.C.

R. I. Nelson, President.

D. H. Barbour, Manager, Product Development & Control.

PRODUCT DEVELOPMENT & CONTROL LAB. (Z-1)

1274 Trites Road, Richmond, B.C.

Professional R & D Staff:

Scientists: Agriculture 1.

Scientific and Product Fields of R & D.

Fish Products, canned, fresh, frozen and reduced.

389. NEW CASTLE PRODUCTS (CANADA) LTD. (Y-1, Z-1)

199 Upper Edison Avenue, St. Lambert, P.Q.

E. Usher-Jones, President.

K. C. Elhen, Vice-President of R & D.

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Operable doors and walls.

390. NIAGARA BRAND CHEMICALS LTD.

1274 Plains Road, East, Burlington, Ontario.

G. E. Willan, Vice-President & General Manager.

D. A. Dever, Technical Director.

TECHNICAL DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Scientists: Agriculture 1, Biology 4, Chemistry 1.

Scientific and Product Fields of R & D.

Agricultural Chemicals.

391. THE NIAGARA WIRE WEAVING CO. LTD. (Z-1)

1400 Robinson Street, Niagara Falls, Ontario.

E. J. Buell, President.

C. O. Dodson, Vice-President of Operations.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Fourdrinier wire cloth.

392. R. H. NICHOLS COMPANY LIMITED.

4544 Dufferin Street, Downsview, Ontario.

F. J. Looker, Executive Vice-President.

T. Rahmer, Chief Engineer.

THE R & D SECTION OF R. H. NICHOLS CO. LTD. (Z-1)

J. Brown, Head of R & D.

Professional R & D Staff:

Engineers: Electrical 2.

Scientific and Product Fields of R & D.

Remote (Supervisory) Control and data transmission and collection systems, Electronic and Electrical, Alarm and indication systems, Automatic battery charging equipment and systems.

393. NOPCO CHEMICAL COMPANY. DIV. OF DIAMOND SHAMROCK CORP.

162 Ward Avenue, Hamilton, Ontario.

CANADIAN ANILINE & EXTRACT CO. LTD. (Y-1, Z-1)

162 Ward Avenue, Hamilton, Ontario.

G. W. Scherf, Director of Research.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Oil and gasoline additives, Water treatment compounds, Flotation chemicals and Plastic additives.

394. NORANDA MINES LIMITED.

1700 Bank of Nova Scotia Building, 44 King St., Toronto.

A. Powis, President.

J. N. Anderson, Director Metallurgical Operations.

NORANDA RESEARCH CENTRE (X-1, Y-1, Z-1)

240 Hymus Blvd., Pointe Claire, P.Q.

W. H. Gauvin, Research Manager.

Professional R & D Staff:

Scientists: Chemistry 12.

Engineers: Chemical 11, Metallurgical 7.

Scientific and Product Fields of R & D.

Physical metallurgy, Extractive Metallurgy, Chemistry Inorganic and physical, Chemical Engineering, Process metallurgy, Process Development and Materials Science, Selenium and Tellurium.

395. NORDIC BIOCHEMICALS LIMITED. (Z-1)

2775 Montée Street, Aubin, Chomedey, Ville de Laval, P.Q.

J. M. Pepin, President.

G. Thibodeau, Research Director.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 3, Pharmacy 3.

Scientific and Product Fields of R & D.

Extracting, purifying and lyophilizing the hypophysial hormones ACTH, TSH, FSH, LH, STH, and LTH of pork, mutton and beef carcasses, and human corpses.

396. NORTHERN ELECTRIC COMPANY LIMITED.

1600 Dorchester Blvd. West, Montreal, Quebec.

V. O. Marquez.

RESEARCH AND DEVELOPMENT DIVISION

(X-1, Y-1, Z-1, X-2, Y-2, Z-2)

P.O. Box 3511, Stn. C Ottawa.

K. S. Hoyle, Acting General Director.

Professional R & D Staff:

Scientists: Chemistry 12, Geology & other Earth Sciences 2, Mathematics 22, Physics 21.

Engineers: Aeronautical 1, Chemical 6, Civil 2, Electrical 310, Electronic 32, Mechanical 34, Metallurgical 5, Mining 1.

Scientific and Product Fields of R & D.

R & D related to telecommunications.

397. THE NORTHERN ENGINEERING AND SUPPLY COMPANY LTD. (Z-1)

114 Myles Street, Fort William, Ontario.

W. J. R. Paton, President.

E. D. Maradyn, Asst. General Superintendent.

Professional R & D Staff:

Engineers: Engineering Technician 2.

Scientific and Product Fields of R & D.

Mechanized equipment for the woodlands operation of the pulp and paper industry.

398. NORTHERN PAINT CO. LIMITED. (Z-1)

P.O. Box 217, Station "C", Winnipeg 9, Man.

A. H. Laing, President.

H. A. Newfield, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Paint.

399. NORTHERN PIGMENT COMPANY LIMITED.

Towns Road, P.O. Box 1, Toronto 14, Ontario.

B. H. Rieger, President.

G. A. Ingham, Vice-President, Technical.

RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 3.

Engineers: 1.

Scientific and Product Fields of R & D.

Solid State chemistry and ceramics — Ferrites Inorganic chemistry — Iron oxide processes and application.

400. NORTHERN RADIO MFG. COMPANY LIMITED. (X-1, Y-1, Z-1)

1950 Bank Street, Ottawa 10, Ontario.

W. Dover, Secretary-Treasurer.

A. W. Y. DesBrisay, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 1.

Engineers: Electrical 3.

Scientific and Product Fields of R & D.

Communications Equipment.

401. NORTHWEST INDUSTRIES LIMITED.

P.O. Box 517, Edmonton, Alberta.

E. L. Bunnell, President & General Manager.

C. J. Evans, Director of Engineering and Research.

RESEARCH AND DEVELOPMENT SECTION (Y-1, Z-1)

J. R. Stephen, Manager — Plastics and Composite Material Research.

Professional R & D Staff:

Engineers: Aeronautical 2, Chemical 2, Mechanical 1.

Scientific and Product Fields of R & D.

Develop materials and process for the production of inexpensive large diameter plastic pipe, Develop materials and hot water and water softener tanks, adhesive bonding system for structural plastic profiles for clerical applications and improve performance characteristics of floating high volume pump.

402. NORTHWEST NITRO-CHEMICALS LIMITED. (Z-1)

P.O. Box 310, Medicine Hat, Alberta.

T. B. Potter, President.

R. E. Alston, Manager of Quality Control & Development.

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Fertilizer production: Ammonium Nitrate, Ammonium Phosphate, and Anhydrous Ammonia.

403. NORTHWOOD PULP LIMITED. (Y-1)

Box 9000, Prince George, B.C.

G. L. Clarke.

R. A. Wiseman, Technical Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 6.

Scientific and Product Fields of R & D.

Effect of Pulpmill affluent on fauna and fish life in receiving streams.

404. NORTON RESEARCH CORPORATION (CANADA) LIMITED.

P.O. Box 690, Chippawa, Ontario.

A. F. McKay, Vice-President and Managing Director.

(Y-2, Z-2), (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3, Geology 7, other Earth Sciences 3.

Engineers: Chemical 7, Electronic 3, Mechanical 1, Metallurgical 2.

Scientific and Product Fields of R & D.

Abrasives and refractories and their production of materials for entirely new uses such as armour plating, electronic devices, metal reinforcement and others.

405. THE NOXZEMA CHEMICAL CO. OF CANADA LTD. (Z-1)

77 Park Lawn Road, Toronto 18, Ontario.

J. M. Shaw.

I. Shimizu, Vice-President & Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Cosmetics and Toilet Preparations.

406. NUODEX CANADA LIMITED. (Z-1)

34 Industrial Street Toronto 17 Ontario.

J. F. Lang.

R. Burt Manager Technical Service.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Paint and Surface Coatings, P.V.C. Compounding and Industrial Fungicides.

407. OCTO LABORATORIES LIMITED. (Y-1)
 2775 Montée St. Aubin, Chomedey, Ville de Laval, P.Q.
 G. Herald, President.
 G. Thibodeau, Research Director.

Professional R & D Staff:
 Scientists: Biology 1, Chemistry 4, Pharmacy 5.
Scientific and Product Fields of R & D.
 Clinical research.

408. THE OGILVIE FLOUR MILLS COMPANY LIMITED.
 Sun Life Bldg., Montreal, Quebec.
 J. W. Tait, President.
 J. C. Langford, Vice-President Technical.
JOHN LABATT LIMITED — FOOD GROUP R & D DEPT.
 (X-1, Y-1, Z-1)
 995 Mill Street, Montreal, P.Q.
 J. Holme, Director of Research & Development.

Professional R & D Staff:
 Scientists: Agriculture 2, Biology 1, Chemistry 6, Nutrition or Home Economics 3.
 Engineers: Chemical 1.
Scientific and Product Fields of R & D.
 Food Chemistry & Technology and Industrial Chemicals.

409. OMEGA LABORATORIES LIMITED.
 349 Graham Blvd., Ville Mont-Royal, P.Q.
 J. Lomoges, President.
 G. Whittbe, Vice-President.
MEDICAL BREEDING LIMITED (X-1, Y-1, Z-1, X-2, Y-2, Z-2)
 1000 Salaberry Street, Chomedey, Laval, P.Q.
 R. Vrancken, Manager.

Professional R & D Staff:
 Scientists: Biology 1.
 Engineers: Chemical 3, Veterinary 1.
Scientific and Product Fields of R & D.
 Development of a delayed action hyposensitizing product, allergy, Development of Hypoallergenic bactericidal and fungicidal soap (dermatology), development of a fur treatment technique to eliminate guard hairs by using a chemical process in the field of furs and development of laboratory animals with varying degrees of arterial hypertension determined before hand.

410. THE ONTARIO PAPER COMPANY LIMITED.
 Thorold, Ontario.
 R. M. Schmon, President.
 C. A. Sankey, Vice-President, Research.
RESEARCH DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:
 Scientists: Chemistry 3.
 Engineers: Chemical 6.
Scientific and Product Fields of R & D.
 Pulp and paper, especially newsprint, Vanillin from spent sulphite liquor, Lignin products, oxalic acid, ethyl alcohol from spent sulphite liquor.

411. ORENDA LIMITED.
 Box 6001, Toronto International Airport.
 F. P. Mitchell, President.
 B. A. Avery, Director of Engineering.
ORENDA LIMITED, GAS TURBINE DEVELOPMENT
 (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:
 Engineers: Aeronautical 8, Chemical 2, Electrical 5, Mechanical 34, Metallurgical 12.
Scientific and Product Fields of R & D.
 Gas Turbine, Atomic Products, Missile Launcher, and special purpose vehicle development.

412. ORMISTON MINING & SMELTING CO. LTD. (Z-1)
 502 Scott Block, Moose Jaw, Saskatchewan.
 A. W. Watson, President.

Professional R & D Staff:
 Engineers: Mechanical 1.
Scientific and Product Fields of R & D.
 Salt Cake.

413. ORTHO PHARMACEUTICAL (CAN.) LIMITED. (X-1, Y-1, Z-1)
 19 Greenbelt Drive, Don Mills, Ontario.
 W. R. Ballantyne, President.
 J. W. D. Cornett, Medical Director.

Professional R & D Staff:
 Scientists: Agriculture 1, Biology 2, Chemistry 1, Medicine & Dentistry 2, Pharmacy 1, Pharmacology 1.
Scientific and Product Fields of R & D.
 New and existing pharmaceutical and diagnostic products.

414. PACIFIC LOGGING COMPANY LIMITED. (Y-1)
 468 Belleville Street, Victoria, B.C.
 W. M. Sloan, President.
 J. MacRae, Timberland Administrator.

Professional R & D Staff:
 Engineers: Forestry 1.
Scientific and Product Fields of R & D.
 Forest Fertilization.

415. PACIFIC PLASTICS (CANADA) LTD. (Y-1, Z-1)
 650 Industrial Avenue, Vancouver, B.C.
 G. B. McKay.
 J. C. Dimmer.

Professional R & D Staff:
 Engineers: Mechanical 1.
Scientific and Product Fields of R & D.
 Plastic Pipe & Related Custom Extrusions.

416. PACIFIC RESINS LIMITED. (X-1, Y-1, Z-1)
 Foot of Keary Street, New Westminster, B.C.
 A. W. Hendry, Vice-President and General Manager.
 W. M. Turko, Technical Department Manager.

Professional R & D Staff:
 Scientists: Chemistry 1.
 Engineers: Chemical 1.
Scientific and Product Fields of R & D.
 Synthetic resins.

417. PAISLEY PRODUCTS OF CANADA LTD. (Y-1, Z-1)

40 Lipton Road, Scarborough, Ontario.

P. P. Paisley, President.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Electrical Insulation and Electrical Condensers and Capacitors.

418. PAR FOAM LIMITED. (Y-1, Z-1, Z-2)

461 Manitou Drive, Kitchener, Ontario.

T. J. Pawlowski, President.

M. Kim, Chemist.

Professional R & D Staff:

Scientists: Polymer Chemist 2.

Scientific and Product Fields of R & D.

Rigid Urethane Foam.

419. C. C. PARKER & ASSOCIATES LIMITED. (X-2, Y-2, Z-2)

680 Queensdale Avenue East, Hamilton, Ontario.

C. C. Parker, President.

L. M. Bull, Executive, Vice-President.

Professional R & D Staff:

Engineers: Civil 5, Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Functional Planning & Design of Highways, Grade Intersections & Bridges and Pollution Control.

420. PEACE RIVER MINING & SMELTING LIMITED. (Y-1, Z-1, Y-2)

P.O. Box 5738, Stn. L, Edmonton, Alberta.

C. P. Gravenor, General Manager.

T. Riss, Director of Chemical Research.

Professional R & D Staff:

Scientists: Chemistry 4, Geology & other Earth Sciences 1.

Engineers: Chemical 8, Electronic 1, Mechanical 1, Metallurgical 3.

Scientific and Product Fields of R & D.

Purification of metallic ores and industrial waste by chemical methods to produce pure metals.

421. PEEL'S POULTRY FARM LIMITED.

Port Perry, Ontario.

D. J. Price, President.

A. D. Smith, Director of Research.

RESEARCH DEPARTMENT (X-1, Y-2, Z-1)

Professional R & D Staff:

Scientists: Agriculture 5.

Scientific and Product Fields of R & D.

Poultry (chicken) genetics and epizootiology and Sheep genetics.

422. PENSTEEL PRODUCTS LIMITED. (Z-1)

183 Merritt Street, St. Catharines, Ontario.

R. S. Millmot, P.Eng.

A. K. Dixon, P.Eng.

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Agriculture short line products and Mobile material handling equipment.

423. PERMAFLEX INDUSTRIES, LIMITED.

5 Vanley Crescent, Downsview, Ontario.

D. Stone, President.

G. L. Shoup, Manager of Manufacturing.

LABORATORY (Z-1)

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Elastomers, principally vinyls and Urethanes.

424. PFIZER COMPANY LIMITED.

50 Place Cremazie, Montreal 11, P.Q.

M. W. Roche, President.

J. D. F. Leith, Vice-President & Director of Medical affairs.

PRODUCT DEVELOPMENT LABORATORY (Z-1)

140 Place Cremazie, Montreal 11, P.Q.

S. A. V. Deans, Product Development Manager.

Professional R & D Staff:

Scientists: Chemistry 1, Pharmacy 1.

Scientific and Product Fields of R & D.

Pharmaceutical Dosage Forms, Veterinary Dosage Forms, Animal Health Products and Feed Supplements.

425. PHARMA-RESEARCH CANADA LTD. (X-1, Y-1, X-2, Y-2)

250 Hymus Boulevard, Pointe Claire, P.Q.

P. B. Stewart.

Professional R & D Staff:

Scientists: Biology 2, Chemistry 6, Medicine & Dentistry 2, Pharmacology 2.

Scientific and Product Fields of R & D.

Drugs and Medicines.

426. PHILCO-FORD OF CANADA LIMITED. (Z-1, Z-2)

900 Don Mills Road, Don Mills, Ontario.

R. A. MacDonald, President.

T. I. Millen, Operations Manager.

Professional R & D Staff:

Scientists: Physics 1.

Engineers: Aeronautical 1, Electronic 5, Metallurgical 1.

Scientific and Product Fields of R & D.

BK/WH TV Systems, Industrial Computer Control, Servo Systems, Info Display Systems, Teletype control systems, Electronic Measuring Systems and Automatic Control.

427. PHILIPS ELECTRONICS INDUSTRIES LIMITED.

116 Vanderhoof Avenue, Toronto 17, Ontario.

H. A. C. Van Beurden, President.

T. Van Dyk, Executive Vice-President.

427A. ANALYTICAL AND PROCESS APPLICATION LAB. (Y-1, Z-1, Y-2)

C. Whitelaw, Application Engineer.

Professional R & D Staff:

Engineers: Metallurgical 1, Engineering Physics 2.

Scientific and Product Fields of R & D.

Investigation of new methods for the application of x-rays in the analysis and inspection of materials.

427B. APPLICATION LAB FOR ELECTRONIC COMPONENTS. (Y-1)

J. Y. Jonkman, Manager, Application Laboratory.

Professional R & D Staff:

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Discrete semiconductors, Integrated circuits, Electronic tubes, Passive components, TV deflection components and Ferrite materials.

427C. CAR RADIO DEVELOPMENT LABORATORY. (Z-1)

J. W. Rawley, Divisional Manager.

Professional R & D Staff:

Engineers: Electrical 2.

Scientific and Product Fields of R & D.

Radio receivers and tape players and electronic devices for automotive functions.

427D. PROFESSIONAL EQUIPMENT DIVISION. (Y-1, Z-1)

A. P. H. Barclay, General Manager.

Professional R & D Staff:

Engineers: Electrical 10, Electronic 3, Mechanical 1.

Scientific and Product Fields of R & D.

Basically Telecommunications, Radio, Telephone Radar range calibrators and telegraph peripheral equipment.

427E. RADIO, COMBINATION & TELEVISION DEV. LAB. (Z-1)

J. Ball, Divisional Manager.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.

Radio receivers, record players and tape players for home entertainment and black and white and colour television receivers.

427F. TUBE AND COMPONENT DIVISION. (Z-1)

116 Vanderhoof Avenue, Toronto 17, Ontario.

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Television picture tubes and Quartz crystal units.

428. PIONEER ELECTRIC MANITOBA LIMITED. (X-1, Y-1, Z-1)

101 Rockman Street, Winnipeg 19, Manitoba.

R. Noonan, President.

T. Shkordoff, Manager of Engineering.

Professional R & D Staff:

Engineers: Electrical 5.

Scientific and Product Fields of R & D.

Heavy Electrical Apparatus, including Transformers Regulators, Reactors and Switchgear.

429. PIONEER SAWS LIMITED. (Y-1, Z-1)

910 Monaghan Road, Peterborough, Ontario.

J. D. Mennell, President.

D. L. Dickson, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 6.

Scientific and Product Fields of R & D.

Two cycle small engine development and applied research.

430. PIRELLI CABLES LIMITED. (X-1, Y-1, Z-1)

77 Richelieu Street, Box 70, St. Johns, P.Q.

D. G. McKay.

Professional R & D Staff:

Engineers: Electrical 4.

Scientific and Product Fields of R & D.

Electric Wire and Cable — Production, Insulation and Application of raw materials and finished cables.

431. PLACER DEVELOPMENT LIMITED.

700 - 1030 W. Georgia Street, Vancouver 5, B.C.

T. H. McClelland, President.

J. H. Eastman, Manager of Engineering.

PLACER RESEARCH AND ASSAY LAB. (Z-1)

Vancouver, B.C.

B. Wilson, Chief Metallurgist.

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 2.

Engineers: Chemical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Test work in Extractive Metallurgy, Micro-chemical analysis of soil samples and research into new indications to be used during search for new ore bodies.

432. PLAX CANADA LIMITED.

50 St. Clair Avenue West, Toronto, Ontario.

D. S. Chant, President.

S. Bateson, Director of Research.

RESEARCH LABORATORIES (Z-1)

First Avenue, Oshawa, Ontario.

Professional R & D Staff:

Scientists: 1.

Scientific and Product Fields of R & D.

Plastic Bottles and Containers.

433. POLCON CORPORATION. (Y-1, Z-1)

30 York Street, Westmount, Montreal, P.Q.

L. Smolski, President.

Professional R & D Staff:

Scientists: Biology 1.

Scientific and Product Fields of R & D.

Treatment of domestic and industrial waste water. Reversal of eutrophication and water quality improvement. Ice prevention.

434. POLYGON SERVICES LIMITED. (X-1)

50 Northline Road, Toronto 16, Ontario.

E. C. Hamlin, President.

A. E. Shaw, Director.

Professional R & D Staff:

Engineers: Civil 1.

Scientific and Product Fields of R & D.

Investigating the parameters affecting impedance losses on dry type transformers and development of new design concept for dry type transformers.

435. PORRITTS & SPENCER (CANADA) LIMITED.

P.O. Box 50, Station B, Hamilton 23, Ontario.

H. Holt, Vice-President.

R. L. Maeder, Head of Research & Development.

RESEARCH & DEVELOPMENT DEPARTMENT (Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Textile 1.

Scientific and Product Fields of R & D.

Industrial Textiles Chiefly, Papermaker's Felts and Filtering Media.

436. PRECISION ELECTRONIC COMPONENTS LIMITED. (Y-1, Z-1)

19 Hafis Road, Toronto 15, Ontario.

A. Simoni, President.

L. Ginsberg, Engineer.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Metallurgy and Ceramic.

437. THE PRICE COMPANY LIMITED.

65 Ste. Anne Street, Quebec, P.Q.

T. R. Moore, President.

L. R. Beath, Manager, Research & Development Dept.

RESEARCH & DEVELOPMENT DEPT. (Y-1, Z-1)

Professional R & D Staff:

Scientists: Sc. Industrial Management 1.

Engineers: Chemical 5, Electrical 1, Pulp & Paper 1.

Scientific and Product Fields of R & D.

Newsprint, pulp, boxboard and packaging, pulping and paper-making processes.

438. THE PROCTER & GAMBLE COMPANY OF CANADA, LIMITED.

2 St. Clair Avenue West, Toronto, Ontario.

G. Williams, President and General Manager.

F. E. Pollock, Director of Product Development.

PRODUCT DEVELOPMENT DIVISION (Y-1, Z-1)

Burlington Street East, Hamilton, Ontario.

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

Synthetic Detergent Products, Soap Products, Edible Shortenings and Oils, Toilet Goods, Prepared Cake Mixes and Industrial Products, Soaps, Detergent, Fats & Oils, Chemical Specialties.

439. PROFESSIONAL PHARMACEUTICAL CORPORATION.

2795 Bates Road, Montreal 26, Quebec.

M. G. Cape, President.

R. E. Cape, Chairman.

QUALITY CONTROL & DEVELOPMENT LAB. (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3, Pharmacy 1.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Dermatological Specialties and Hypo-Allergenic cosmetics.

440. PROTECTIVE PLASTICS LIMITED.

84 Rainside Road, Don Mills, Ontario.

P. Szasz, President.

G. A. Halliday, Research & Development.

PRODUCT DEVELOPMENT (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Fiberglass reinforced plastic.

441. PULMAC RESEARCH LIMITED. (Y-1, Z-1, Y-2, Z-2)

5048 De Maisonneuve West, Montreal, P.Q.

W. F. Cowan, President.

O. J. Kallmes.

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Pulp & Paper Industry.

442. THE PURDUE FREDERICK CO. (CAN.) LTD. (Z-1)

123 Sunrise Avenue, Toronto 16, Ontario.

J. S. C. Moffat, President.

R. T. Towson, Vice-President and Medical Director.

Professional R & D Staff:

Scientists: Medicine & Dentistry 2, Pharmacy 3.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Clinical testing of marketed and unmarketed pharmaceuticals.

443. PUROLATOR (CANADA) LIMITED. (Y-1, Z-1)

1180 Lakeshore Road East, Port Credit, Ontario.

E. R. Pirkin.

C. A. Cook.

Professional R & D Staff:

Engineers: Electronic 1, Mechanical 2.

Scientific and Product Fields of R & D.

Filter separators to meet domestic and international requirement, New monitors to detect free water and contaminants in jet fuel, filters to meet new filter requirements for domestic, industrial and petroleum processing and the automotive industry.

444. PYLON ELECTRONIC DEVELOPMENT COMPANY LTD. (Y-1, Z-1, Z-2)

2300 Victoria Street, Lachine, Quebec.

J. E. Pinnell.

H. Lake, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Electrical 3.

Scientific and Product Fields of R & D.

Power conversion field including a 5KVA Cyclo inverter, SCR Converters and other small power devices.

445. PYRAMID MACHINE WORKS LIMITED. (Y-1, Z-1, Y-2, Z-2)

276 East Esplanade, North Vancouver.

H. Hagedorn, President.

Professional R & D Staff:

Engineers: Electronic 1, Metallurgical 1.

Scientific and Product Fields of R & D.

Automatic Packaging Machinery, Palletisers, Rewinders for transparent films and Edging units to automatically and accurately cut shingles.

446. QUEBEC IRON & TITANIUM CORPORATION.

P.O. Box 40, Sorel, P.Q.

W. L. Walsh, President.

F. A. Kay, Technical Director.

Q.I.T. RESEARCH CENTER (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 6, Geology & other Earth Sciences 1, Physics 1.

Engineers: Chemical 7, Electrical 3, Mechanical 1, Metallurgical 19, Mining 1.

Scientific and Product Fields of R & D.

Chemistry, ilmenite ores and titania slags, Pyrometallurgy, ilmenite ores, titania slags Ferrous Metallurgy, grey iron and ductile iron and Analytical Chemistry.

447. QUEBEC NORTH SHORE & LABRADOR RAILWAY CO. (X-1, Y-1, Z-1)

Sept-Iles, Quebec.

Professional R & D Staff:

Engineers: Civil 2, Mechanical 1.

Scientific and Product Fields of R & D.

Investigation of rail performance with the object of prolonging rail life through: improvements in maintenance practices and in rail steel composition and treatment and also development of measuring equipment and instrumentation for use in evaluating rail performance.

448. RADER PNEUMATICS & ENGINEERING CO. LTD. (Y-1, Z-1, Y-2, Z-2)

Box 5567, Postal Station F, Vancouver 12, B.C.

W. C. Smith, President.

Professional R & D Staff:

Engineers: Mechanical 3, Mining 1.

Scientific and Product Fields of R & D.

Pneumatic conveyors and component parts and a study of causes and cures for damage to wood chips in various stages of manufacture, handling and storage.

449. RADIO ENGINEERING PRODUCTS LIMITED.

P.O. Box 460, Montreal 248, Que.

C. B. Fisher, President.

RADIO ENGINEERING DEPT. (Z-1)

R. Henry, Chief Development Engineer.

Professional R & D Staff:

Engineers: Civil 5.

Scientific and Product Fields of R & D.

Development of tactical military communication systems.

450. RALSTON PURINA OF CANADA LIMITED.

Woodstock, Ontario.

G. Pierce, President.

DIAMOND WHITE RESEARCH FARM (Y-1, Z-1)

New Hamburg, Ontario.

R. W. C. Stevens, Geneticist.

Professional R & D Staff:

Scientists: Agriculture 2.

Scientific and Product Fields of R & D.

To develop and improve strains of domestic turkeys.

451. R & L MOLECULAR RESEARCH LIMITED. (Y-2)
8045 Argyll Road, Edmonton, Alberta.
R. U. Lemieux.

Professional R & D Staff:
Scientists: Chemistry 7.

Scientific and Product Fields of R & D.
Carbohydrate syntheses, Heterocyclic syntheses and Amino Acid syntheses.

452. RAMSEY REC LIMITED. (X-2, Y-2, Z-2)
385 Enford Road, Richmond Hill, Ontario.
J. T. Sniezek, President.

Professional R & D Staff:
Engineers: Civil 1, Electrical 2, Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.
Digital Batching Systems for Feed Mills and Teaching Aids.

453. W. H. RAPSON LIMITED. (X-2, Y-2, Z-2)
3 Fallingbrook Crescent, Scarborough, Ontario.
W. H. Rapson, President.

Professional R & D Staff:
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Pulp and Paper Industry, the bleaching of pulp, Wood Chemistry and Manufacture of Chlorine Dioxide.

454. RAYBESTOS-MANHATTAN (CANADA) LTD. (Y-1, Z-1)
280 Perrist, Peterboro, Ontario.
J. S. Munro, President.
G. F. Butt, Vice-President, R & D.

Professional R & D Staff:
Scientists: Chemistry 1.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Industrial and Automotive Rubber hose and friction materials.

455. RAYLO CHEMICALS LIMITED. (Y-1, Y-2, Z-2)
8045 Argyll Road, Edmonton 82, Alberta.
R. U. Lemieux, President & Research Director.

Professional R & D Staff:
Scientists: Chemistry 5.

Scientific and Product Fields of R & D.
Complex Amino sugars, Rare carbohydrates and derivatives, Heterocyclic compounds, Special analytical reagents and Biochemicals.

456. RAYMOND MANUFACTURING COMPANY LIMITED. (Y-1, Z-1)
475 Montreal-Toronto Blvd., Lachine, Que.
G. Durand, Controller.
J. M. Raymond, President.

Professional R & D Staff:
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Aluminum Processing, Anodizing Processes, Vacuum Metallizing and Vad-Cadmium Processes.

457. RAYMOND SNACK FOODS LIMITED. (Y-1, Z-1)
3065 King Street East, Kitchener, Ontario.
R. Gibney, President.
B. Murdoch, Food Technologist.

Professional R & D Staff:
Scientists: Food Science 1.

Scientific and Product Fields of R & D.
New Snack Foods.

458. RAYONIER (B.C.) LIMITED.
1111 West Georgia Street, Vancouver 5, B.C.
G. S. J. Howell, President.
L. H. Bock, Manager of Research.
RESEARCH DIVISION (X-1, Y-1, Z-1)
8809 South Heather Street, Vancouver 14, B.C.

Professional R & D Staff:
Scientists: Chemistry 8.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Bleached Sulphite Pulps.

459. RAY-O-VAC DIVISION, ESB CANADA LTD. (Z-1)
1800 Sargent Avenue, Winnipeg, Manitoba.
J. Doig, Executive Vice-President.
J. Armstrong, Project Engineer.

Professional R & D Staff:
Scientists: Chemistry 2.

Scientific and Product Fields of R & D.
Conventional and New Power storage systems.

460. RAYTHEON CANADA LIMITED. (Y-1, Z-1, Y-2, Z-2)
400 Phillip Street, Waterloo, Ontario.
J. R. Cann, President.
T. W. R. East, Director of Advanced Development.

Professional R & D Staff:
Scientists: Physics 1.
Engineers: Electronic 38, Mechanical 1.

Scientific and Product Fields of R & D.
Radar & Navigation Equipments, Electronic Devices & Circuitry, Microwave Devices & Components, Electronic Displays, Solid State Circuitry, Electronic Reliability and Specialized Electronic Devices.

461. RCA VICTOR COMPANY, LIMITED.

1001 Lenoir St., Montreal, Que.

J. D. Houlding, President.

M. P. Bachynski, Director of Research.

461A. RESEARCH LABORATORIES. (Z-1, X-2, Y-2, Z-2)*Professional R & D Staff:*

Scientists: Physics 28.

Engineers: Electrical 9.

Scientific and Product Fields of R & D.

Integrated circuits at microwave frequencies, Optical and photo-detectors, Digital communications, Millimetre wave techniques, Space applications, Plasma physics, Educational electronics, Lasers and laser applications, Nuclear radiation detectors.

461B. DEFENCE ENGINEERING. (Z-1, Z-2)

J. C. Barron, Manager, Defence Engineering.

Professional R & D Staff:

Engineers: Electronic 35, Mechanical 2.

Scientific and Product Fields of R & D.

Electronic equipment, especially Digital Display Systems and Military Electronic Equipment and Systems.

461C. BROADCASTING AND COMMUNICATIONS ENGINEERING. (Y-1, Z-1, Z-2)

G. F. Baylis.

Professional R & D Staff:

Engineers: Electronic 45.

Scientific and Product Fields of R & D.

Microwave Communications — SSB Communications — BC/TV Equipment.

**461D. AEROSPACE ENGINEERING. (Y-1, Z-1, Y-2, Z-2)
EARTH STATION ENGINEERING.**

P. Foldes, Manager.

Professional R & D Staff:

Scientists: Mathematics 2, Physics 7.

Engineers: Electronic 24, Mechanical 5.

Scientific and Product Fields of R & D.

Antennas, Spacecraft and spacecraft subsystems and Earth station electronics and subsystems.

462. REICHOLD CHEMICALS (CANADA) LIMITED.

1919 Wilson Avenue, Weston, Ontario.

G. L. Hagen, President.

R. C. Vasishth & R. T. O'Shaughnessy.

462A. CENTRAL DIVISION R & D DEPARTMENT (Y-1, Z-1)

P. R. Bennett, Technical Director, Central Division.

Professional R & D Staff:

Scientists: Chemistry 10.

Scientific and Product Fields of R & D.

Polyester resin, Alkyd resin, Emulsion resin, Moulding compound and Urethane resin research and development.

462B. CORPORATE RESEARCH DEPARTMENT. (X-1, Y-1)

R. C. Vasishth, Research Director.

Professional R & D Staff:

Scientists: Chemistry 7.

Scientific and Product Fields of R & D.

Phenol formaldehyde resins and other condensation polymers, fill radical emulsion polymerization, Scientific methods evaluation and general polymer research.

462C. EASTERN DIVISION R & D DEPARTMENT. (Z-1)

P.O. Box 120, Ste. Therese de Blainville, Quebec.

A. Berchem, Technical Director, Eastern Division.

Professional R & D Staff:

Scientists: Agriculture 1.

Scientific and Product Fields of R & D.

Phenol formaldehyde resin, Urea formaldehyde resin, Particle board and Polyester applications.

462D. WESTERN DIVISION R & D DEPARTMENT (Y-1, Z-1)

P.O. Box 130, Port Moody, British Columbia.

W. B. Smith, Technical Director, Western Division.

Professional R & D Staff:

Scientists: Chemistry 7.

Scientific and Product Fields of R & D.

Phenol-formaldehyde resins and Forest products adhesives.

463. RELIABLE FUR DRESSERS & DYERS.

400 Richmond Street, West, Toronto, Ontario.

V. Topper, Vice-President.

A. C. Morrison, Chief Chemist.

FUR PROCESSING PLANT (Z-1)*Professional R & D Staff:*

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Tanning & Dyeing of all types of furs, Alaska Seal Processing, Bleaching & Dyeing Persian Lamb, Plucking of Nutria and New Methods of Tanning Sheepskins & Lambs.

464. RENCO DESIGN LIMITED. (Y-2, Z-2)
 3089 Bathurst St., Suite 310, Toronto, Ontario.
 T. A. Reeve, President.
 S. Harbord, Chief Designer.

Professional R & D Staff:
 Engineers: Electrical 2, Electronic 3, Mechanical 5.

Scientific and Product Fields of R & D.
 Design of new machinery, devices, automation for manufacturing processes and handling of products in metal, wood, leather, paper and printing, also for the automotive, home appliance, agricultural and aircraft industries.

465. RESEARCH INDUSTRIES LIMITED. (Z-1)
 2971 Lake City Way, Burnaby 2, B.C.
 H. Kay, President.
 W. D. Bees, Chief Engineer.

Professional R & D Staff:
 Scientists: Physics 1.
 Engineers: Electronic 1.

Scientific and Product Fields of R & D.
 Telephone Power Plant Development, Rectifier Development, Inverter Development, DC to DC Converters and DC Voltage regulators.

466. REUTER-STOKES CANADA LIMITED. (Y-1, Z-1, Y-2, Z-2)
 Box 45, Preston, Ontario.
 F. W. Reuter Jr., President.
 C. W. Joslin, Engineering Manager.

Professional R & D Staff:
 Engineers: Electronic 2, Mechanical 1.

Scientific and Product Fields of R & D.
 Materials & Devices for in-reactor nuclear service.

467. REYNOLDS ALUMINUM COMPANY OF CANADA LIMITED. (Z-1)
 Cap-de-la-Madeleine, Quebec.
 A. Piché, Exec. Vice-President & General Manager.
 G. Guèvremont, Vice-President, Corporate Development.
 R. G. H. Currie, Director, Research & Development.

Professional R & D Staff:
 Scientists: Chemistry 5.

Scientific and Product Fields of R & D.
 Casting, hot and cold rolling of aluminum alloys, Metallurgical investigation of aluminum alloys, Cold rolling of aluminum foil and plain and printed flexible packaging materials.

468. RICHELIEU CHEMICAL CO. LTD.
 24 Marchand Street, St. Johns, P.Q.
 J. G. Clough.
 S. Adam, Research Director.
MONCHEM INC. (Z-1)
 St. Barthelemy, P.Q.
 P. Stark, Manager.

Professional R & D Staff:
 Scientists: Chemistry 1.
 Engineers: Chemical 1, Textile 1.

Scientific and Product Fields of R & D.
 Flame Retardant Coating Compounds and Pulp bleach additives.

469. RILEY'S DATASHARE INTERNATIONAL LIMITED. (X-1, Y-1, Z-1)
 631 - 8th Ave. S.W., Calgary 2, Alberta.
 A. D. Minor, President.
 F. C. Brechtel, Vice-President, Technical Applications.

Professional R & D Staff:
 Scientists: Geology & other Earth Sciences 1, Mathematics 3.
 Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.
 Scanners for oilwell logs and other systems for recording and retrieving data in petroleum industry.

470. RIO ALGOM MINES LIMITED, MINING DIVISION.
 120 Adelaide Street W., Toronto.
 R. D. Armstrong, President.
 M. E. Grimes, Manager of Research.
RESEARCH & DEVELOPMENT DEPARTMENT (Y-1, Z-1, Y-2, Z-2)
 Elliot Lake, Ontario.

Professional R & D Staff:
 Scientists: Chemistry 4.
 Engineers: Metallurgical 4, Chemical 5.

Scientific and Product Fields of R & D.
 Nuclear Products.

471. RITTER PFAUDLER CANADA LIMITED. (Z-1, Z-2)
 285 Raleigh Avenue, Scarborough, Ontario.
 J. W. Nelson, Research Manager & Technical Director.

Professional R & D Staff:
 Engineers: Chemical 5.

Scientific and Product Fields of R & D.
 Metal Evaporators for Oil, Chemical, Brewing, Packing House and Dairy Industry.

472. ROBERTSON-IRWIN LIMITED.
 411 Parkdale Avenue North, Hamilton, Ontario.
 J. G. Green, President.
 F. Dyer, Manager Research & Development.
RESEARCH & DEVELOPMENT DEPARTMENT (Z-1)

Professional R & D Staff:
 Engineers: Civil 3.

Scientific and Product Fields of R & D.
 Prefabricated insulated metal walls, roofs and floor systems.
 Thermal movement of aluminum & steel in relation to metal wall panels and Industrial ventilation.

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- 473. ROBIN HOOD FLOUR MILLS LIMITED.**
1065 Exchange Bldg., Winnipeg, Manitoba.
J. Tatam, President.
S. T. Hadley, Director Research & Quality Control.
RESEARCH & QUALITY CONTROL LABORATORIES (Y-1, Z-1)
785 Plymouth, Town of Mount Royal, Que.
- Professional R & D Staff:*
Scientists: Agriculture 1, Chemistry 4, Physics 1.
Engineers: Chemical 1.
Scientific and Product Fields of R & D.
Bakery Mixes, Consumer Products, Industrial uses for surplus flours, Starches and Gluten.
-
- 474. E. S. & A. ROBINSON (CANADA) LIMITED.**
69 Laird Drive, Toronto 17, Ontario.
V. D. Strickland, Executive Vice-President.
W. G. Reid, Vice-President Manufacturing & Technical Director.
TECHNICAL & DEVELOPMENT DEPT. (Y-1, Z-1)
- Professional R & D Staff:*
Scientists: Chemistry 1.
Engineers: Chemical 2.
Scientific and Product Fields of R & D.
Flexible packaging materials.
-
- 475. WM. ROBINSON LTD. (Z-1)**
4120 Lougheed Hwy., Burnaby, B.C.
W. D. Campbell, Manager.
R. R. Gayton, Manager Development.
- Professional R & D Staff:*
Scientists: Agriculture 1.
Scientific and Product Fields of R & D.
Food Technology.
-
- 476. ROLLAND PAPER COMPANY LIMITED.**
3620 Victoria Square, Montreal, P.Q.
L. G. Rolland, President & General Manager.
J. L. Chollet, Vice-President.
TECHNICAL DEPARTMENT. (Z-1)
St. Jerome, Co. Terrebonne, Quebec.
- Professional R & D Staff:*
Engineers: Chemical 3.
Scientific and Product Fields of R & D.
Printing and Writing Papers.
-
- 477. RONSON PRODUCTS OF CANADA LIMITED.**
110 Ronson Drive, Rexdale, Ontario.
A. B. Johnson, Executive Vice-President.
W. D. Taylor, Chief Engineer.
R & D (Y-1, Z-1)
- Professional R & D Staff:*
Engineers: Mechanical 1.
Scientific and Product Fields of R & D.
Small electro/mechanical devices as used in small appliances.
-
- 478. ROTHMANS OF PALL MALL CANADA LIMITED. (X-1, Y-1, Z-1)**
75 Dufflaw Road, Toronto 19, Ontario.
J. H. Devlin, President.
Ernst Meinzer, Chief Chemist.
- Professional R & D Staff:*
Scientists: Chemistry 2.
Scientific and Product Fields of R & D.
Tobacco products.
-
- 479. V. W. RUSKIN & ASSOCIATES ENGINEERING LIMITED. (Y-2, Z-2)**
470 Granville Street, Vancouver, B.C.
V. W. Ruskin, President.
J. H. Brinnan.
- Professional R & D Staff:*
Scientists: Mathematics 1.
Engineers: Civil 1, Electrical 2, Mechanical 2.
Scientific and Product Fields of R & D.
Computer software, Gas Utility Planning Simulations, using computers, Mining feasibility, Orebody calculations from Drill data, Pit Design, etc.
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- 480. ST. LAWRENCE CEMENT COMPANY. (Y-1, Z-1)**
P.O. Box 520, Clarkson, Ontario.
G. Zulauf, Vice-President & Plant Manager.
J. Laneuville, Director Research & Development.
- Professional R & D Staff:*
Scientists: Chemistry 2.
Scientific and Product Fields of R & D.
Cement and Concrete.
-
- 481. ST. LAWRENCE COLUMBIUM AND METALS CORPORATION.**
1010 Ste. Catherine Street West, Montreal 110, Quebec.
Jean-Claude Caron, Executive Vice-President.
S. Dessureaux, Superintendent.
MINE LABORATORY (Y-1, Z-1)
P.O. Box 200, Oka, P.Q.
- Professional R & D Staff:*
Scientists: Chemistry 1.
Engineers: Metallurgical 1.
Scientific and Product Fields of R & D.
Ore dressing, hydro-metallurgy, metallurgy.
-
- 482. SALADA FOODS LIMITED. (Y-1, Z-1)**
855 York Mills Road, Don Mills, Ontario.
R. Beeson, President.
C. A. Kennedy, Director, Research & Development.
- Professional R & D Staff:*
Scientists: Chemistry 6.
Scientific and Product Fields of R & D.
New Product and Product improvement in Food Technology.
-
- 483. S & L SEASONINGS LIMITED. (X-1)**
99 Advance Road, Toronto 18, Ontario.
T. J. Keefe, Vice-President.
B. M. Lawrence, Research Director.
- Professional R & D Staff:*
Scientists: Chemistry 3.
Scientific and Product Fields of R & D.
Research on Spices and Herbs, Essential Oils, Natural Products and Promotion of Essential Oil Growing in Canada.
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484. SANDER GEOPHYSICS LIMITED.
1305 Richmond Road, Ottawa 14, Ontario.
G. W. Sander, President.
T. Devenyl, Design Engineer.
LABORATORY (Z-1)

Professional R & D Staff:
Scientists: Geology and other Earth Sciences 1.
Engineers: Electronic 1.

Scientific and Product Fields of R & D.
Airborne geophysical instruments, electromagnetic, instruments, Nuclear Precession Magnetometers, and 16 mm. cameras.

485. SANGAMO COMPANY LIMITED. (Z-1)
215 Laird Drive, Toronto 17, Ontario.
L. C. Collingwood, President.
V. E. Dickson, Manager of Engineering.

Professional R & D Staff:
Engineers: Chemical 1, Electrical 4.

Scientific and Product Fields of R & D.
Electricity metering instruments including transformers and ancillary equipment.

486. SCARFE & COMPANY LIMITED.
845 Wyandotte Street West, Windsor, Ontario.
J. G. McWade, Vice-President, Adminis.
LABORATORY, SCARFE & CO. LTD. (Y-1, Z-1)
35 Greenwich Street, Brantford, Ontario.

Professional R & D Staff:
Scientists: Chemistry 1.

Scientific and Product Fields of R & D.
Protective Coatings.

487. THE SCHOLL MANUFACTURING COMPANY LIMITED. (Y-1, Z-1)
174 Bartley Drive, Toronto 16, Ontario.
C. A. Holt, Vice-President & General Manager.
W. Turkewitsch, Chief Chemist.

Professional R & D Staff:
Scientists: Chemistry 1, Pharmacy 1.

Scientific and Product Fields of R & D.
Adhesives for adhesive tape industry, Keratolytics for corn and callous preparations and creams and lotions for skin care.

488. SCINTREX LIMITED.
79 Martin Ross Avenue, Downsview, Ontario.
H. O. Seigel, President.
R. A. Bosschart, Vice-President, Research.
RESEARCH LABORATORIES, (X-1, Y-1, Z-1, X-2, Y-2, Z-2)
V. A. Burda, Chief Engineer.

Professional R & D Staff:
Scientists: Geology & other Earth Sciences 10 Physics 1.
Engineers: Electronic 5.

Scientific and Product Fields of R & D.
Component and absolute magnetic field measurements, Gravity Measurements, Electronmagnetic and induced polarization measurements, Audio and acoustic apparatus, and Digital measuring devices.

489. SCOTT PLASTICS LIMITED. (Y-1, Z-1, Y-2, Z-2)
21 Erie Street, Victoria, B.C.
B. J. Scott, President.

Professional R & D Staff:
Engineers: Electrical 1.

Scientific and Product Fields of R & D.
New proprietary products chiefly employing use of plastic materials and for marine industries and new custom products for varied industrial applications.

490. SEA POOL FISHERIES LIMITED. (Y-1, Z-1)
Lake Charlotte Post Office, Nova Scotia.
P. E. Cavanagh, President.
I. H. MacPherson, General Manager.

Professional R & D Staff:
Scientists: Biology 2.

Scientific and Product Fields of R & D.
To develop design criteria and basic technology necessary to operate sea farm for production of fish and sea food products.

491. G. D. SEARLE & COMPANY OF CANADA LIMITED. (Y-1, Z-1)
390 Orenda Road, Bramalea, Ontario.
H. R. Hutchings, Vice-President and General Manager.
C. F. Palmer, Director of Clinical Research.

Professional R & D Staff:
Scientists: Chemistry 1, Medicine & Dentistry 2, Pharmacy 1.

Scientific and Product Fields of R & D.
Ovulen, Birth Control, 21 day regimen and Ovuquen, Birth Control, sequential regimen.

492. SEIBERLING RUBBER COMPANY.
99 Paton Road, Toronto 9, Ontario.
D. W. Moriarty, President.
E. J. Wasco, Chemical Engineer.
TECHNICAL SERVICE DEPARTMENT (Z-1)

Professional R & D Staff:
Engineers: Chemical 2.

Scientific and Product Fields of R & D.
Passenger car tires.

493. SELKIRK-METALBESTOS LIMITED. (Y-1, Z-1)
130 North Augusta Road, Brockville, Ontario.
R. J. Loveless, General Manager.
W. H. Punt, Product Engineers.

Professional R & D Staff:
Engineers: Mechanical 1.

Scientific and Product Fields of R & D.
Combustion technology, fluid flow and thermodynamics as applied to chimneys and fireplaces.

494. SEPARATOR ENGINEERING LIMITED.

3365 Ridgewood Avenue, Montreal 28, P.Q.

B. Kahane, President.

J. L. More.

PLANT TEST AREA (Y-1, Z-1)

660 Parthenais Street, Montreal.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Vibrating Structures, Behaviour of Dry and Wet Materials Subjected to Mechanical Vibration Separation of Materials by Vibratory Means.

495. SERVICE STEEL & ENGINEERING LIMITED. (Y-1, Z-1)

621 Parkdale Avenue N., Hamilton, Ontario.

M. Proctor, President.

W. J. C. Lewis, Chief Engineer.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Dock levellers and other Dock door equipment.

496. SHAWINIGAN CHEMICALS LIMITED.

1 Place Ville Marie, Box 6030, Montreal 113, P.Q.

V. N. Hurd, President.

D. C. Downing, Director of Research.

SHAWINIGAN RESEARCH CENTRE (Y-1, Z-1)

Box 500, Ste. Anne-de-Bellevue, P.Q.

Professional R & D Staff:

Scientists: Chemistry 31.

Engineers: Chemical 6, Mechanical 1.

Scientific and Product Fields of R & D.

Organic Chemicals and Plastics.

497. SHELDONS ENGINEERING LIMITED.

555 Conestogo Blvd., Galt, Ontario.

G. M. Egoft, President & Managing Director.

R. G. Stevenson, Engineering Manager.

AMCA APPROVED TEST & DESIGN LAB. (Z-1)

96 Grand Avenue, South, Galt, Ontario.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Heating and ventilation units, Air Conditioning, Centrifugal Fans, Axial Fans and Fan flow characteristics.

498. SHELL CANADA LIMITED.

505 University Avenue, Toronto, Ontario.

H. Bridges, President.

G. Shane, Director — Research.

498A. MONTREAL RESEARCH LABORATORY. (Y-1, Z-1)

Shell Canada Ltd., Montreal E., Refinery, Pointe Aux Trembles, P.Q.

H. Buxton, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Physical and Chemical testing of fuels, asphalts, additives, crude oils, and various refinery streams. Some equipment evaluation is also carried out.

498B. SARNIA RESEARCH LABORATORY. (Y-1, Z-1)

Shell Canada Limited, Sarnia Refinery, Corunna, Ont.

D. Rhodes, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 11.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Physical and chemical testing of petroleum fuels, lube oils, greases, crude oils, additives, and various refinery streams. Some equipment evaluation is also carried out.

499. SHERMAN AND ULSTER LIMITED.

301 Lansdowne Avenue, Toronto 3, Ontario.

B. C. Sherman, President.

F. M. Martin, Director R. & D.

EMPIRE LABS. RESEARCH DIVISION (Y-1, Z-1, Z-2)

Professional R & D Staff:

Scientists: Chemistry 3, Pharmacy 1.

Biochemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Pharmaceutically active materials.

500. SHERRITT GORDON MINES LIMITED.

25 King Street West, Toronto 1, Ontario.

D. D. Thomas, President.

V. N. Mackiw, Vice-President. Technology & Corporate Development.

RESEARCH & DEVELOPMENT (X-1, Y-1, Z-1, X-2, Y-2, Z-2)

Fort Saskatchewan, Alberta.

D. J. I. Evans, Director, Research & Development Division.

Professional R & D Staff:

Scientists: Chemistry 11, Geology and other Earth Sciences 1, Physics 1, Natural Sciences 1.

Engineers: Chemical 20, Metallurgical 8.

Scientific and Product Fields of R & D.

Extractive Metallurgy, Powder Metallurgy, Fertilizers, Wrought Metals and Heavy Chemicals.

501. THE SHERWIN-WILLIAMS COMPANY OF CANADA, LIMITED.

2875 Centre Street, Montreal 104, Quebec.

S. Ling, President.

D. H. Hargrave, Technical Director.

RESEARCH AND DEVELOPMENT DEPARTMENT (X-1, Y-1, Z-1)

Professional R & D Staff:

Scientists: Agriculture 2, Biology 26.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Protective Coatings, Polymers, Herbicides and Insecticides.

502. SIEMENS CANADA LIMITED.

7300 Trans-Canada Highway, Pointe Claire, Quebec.

H. Grabherr.

G. C. von Haza.

ELECTRON-MICROSCOP AND X-RAY ANALYSIS APPLICATIONS
LAB. (Y-1, Z-1, Z-2)

J. W. Kuessner, El. Engineer.

Professional R & D Staff:

Engineers: Electronic 3.

*Scientific and Product Fields of R & D.*X-Ray Diffraction analysis with Crystalloflex II and IV, X-Ray
Fluorescence analysis with Sequential X-Ray Spectrometer
SRS-1 and Examinations with the Electron Microscope ELMIS-
KOP 101.**503. SILVERWOOD DAIRIES LIMITED.**

P.O. Box 2185, Terminal A, London, Ontario.

T. L. Davies, President and Chief Executive Officer.

A. G. Sargent, Supervisor, Research & Development.

SILVERWOOD RESEARCH AND DEVELOPMENT DIVISION
(X-1, Y-1, Z-1)

75 Bathurst Street, London, Ontario.

C. L. Diutschaeffer, Research Consultant.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 1.

*Scientific and Product Fields of R & D.*To improve the performance characteristics of certain specified
milk constituents, The Dairy waste acid whey constituent and
the milk fat constituent.**504. T. S. SIMMS & COMPANY LIMITED. (Z-1)**

P.O. Box 820, Sain John, N.B.

G. E. Hartwell, Vice-President & General Manager.

D. S. Mackey.

Professional R & D Staff:

Engineers: Mechanical 7.

*Scientific and Product Fields of R & D.*Prototype Machinery for manufacture of Paint Brushes, Roller
Coaters and Paint Applicator in Handle dipping, Developments
in process for manufacturing Paint Applicators and Paint
Applicator Products.**505. SIMTEC LIMITED. (Y-1, Z-1, Z-2)**

3400 Metropolitan Blvd. E., Montreal.

N. P. Harvey, President.

E. R. Sample, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 3.

*Scientific and Product Fields of R & D.*Radiation Detectors, Operational Pre-Amplifiers and Amplifiers,
and Nuclear Reactor Instrument.**506. SINCLAIR RADIO LABS. LIMITED. (X-1, Y-1, Z-1, X-2, Y-2, Z-2)**

122 Rayette Road, Maple, Ontario.

G. Sinclair, President.

W. V. Tilston, Director Research.

Professional R & D Staff:

Scientists: Mathematics 1.

Engineers: Electrical 6, Electronic 2, Mechanical 1.

*Scientific and Product Fields of R & D.*Radio Frequency Filters, Multicouplers, Antennas, Antenna Sys-
tems, R.F. Communications and control Systems.**507. SINCLAIR & VALENTINE COMPANY OF CANADA LTD. (Y-1, Z-1)**

4590 Dufferin Street, Downsview, Ontario.

W. L. Kitchen, President.

J. Lefave, Director of Research & Development.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Printing Inks.

508. E. D. SMITH & SONS, (Z-1)

Winona, Ontario.

E. L. G. Smith, President

W. J. Jeffery, Director of Manufacturing.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Processing of Food Products and Low Calorie Diet Foods.

509. SMITH AND STONE LIMITED.

50 St. Clair Avenue West, Toronto, Ontario.

D. S. Chant, President.

S. Bateson, Director of Research.

RESEARCH LABORATORIES (Y-1, Z-1)

First Avenue, Oshawa, Ontario.

Professional R & D Staff:

Scientists: 2.

Scientific and Product Fields of R & D.

Plastics, Electrical and wiring devices and Ceramics.

510. SMITH KLINE & FRENCH, I.A.C.

300 Laurentian Blvd., Montreal 9, Quebec.

R. F. Daily, Vice-President & General Manager.

A. J. Moriarity, Director of Research & Development.

RESEARCH AND DEVELOPMENT DIVISION (X-1, Y-1, Z-1)

87 Senneville Road, Senneville, Quebec.

*Professional R & D Staff:*Scientists: Biology 3, Chemistry 6, Medicine & Dentistry 1, Phar-
macy 4, Veterinary 1.*Scientific and Product Fields of R & D.*Pharmacy Research — formulation, biopharmaceutics, Chemistry
— analytic, Biochemistry, Microbiology, Pharmacology, Clinical
— co-ordination clinical evaluation of tranquilizers, vaccines,
etc.

511. C. R. SNELGROVE CO. LIMITED. (Z-1)

141 Bond Avenue, Don Mills, Ontario.

W. C. Hickling, President.

J. F. Gehrels, Vice-President Engineering.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.

Quartz Crystals, Filters, Ovens and Package Oscillators.

512. SOLA BASIC LIMITED. (X-1, Z-1)

377 Evans Avenue, Toronto 18, Ontario.

A. Lutlew, President.

L. Jarry, Chief Engineer.

Professional R & D Staff:

Engineers: Electrical 3, Electronic 1.

Scientific and Product Fields of R & D.

Electrical Transformers, Power Supplies etc.

513. SONOCO PRODUCTS COMPANY OF CANADA LTD. (X-1, Z-1)

33 Park Avenue East, Brantford, Ontario.

R. J. Fletcher, Chairman of the Board.

W. D. Bradley, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Electrical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Paper Products.

514. SOUTHAM PRINTING COMPANY LIMITED.

Box 510, Weston, Ontario.

J. D. Murray.

R. Murray, Research Manager.

RESEARCH & DEVELOPMENT DEPARTMENT (Z-1)

Professional R & D Staff:

Engineers 1.

Scientific and Product Fields of R & D.

Printing Technology.

515. SPACE RESEARCH INSTITUTE INCORPORATED. (X-2, Y-2, Z-2)

Highwater, Quebec.

G. V. Bull, Director.

Professional R & D Staff:

Scientists: Mathematics 2, Physics 4.

Engineers: Electrical 2, Mechanical 5.

Scientific and Product Fields of R & D.

R & D is performed in Rocketry, Electronic, Telemetry, High Speed Photography and Static Testing of Propellant, Liquid & Solid.

516. SPAR AEROSPACE PRODUCTS LIMITED. (Y-1, Z-1, Z-2)

P.O. Box 6022, Toronto International Airport.

L. D. Clarke, President.

P. A. Lapp, Senior, Vice-President

Professional R & D Staff:

Scientists: Mathematics 3, Physics 4.

Engineers: Aeronautical 2, Electronic 4, Metallurgical 7, Mining 1.

Scientific and Product Fields of R & D.

STEM (antennas or booms for spacecraft or ground environment), SPACECRAFT DYNAMICS, ELECTRO-OPTICS — I.R. and Visible, ELECTRONICS — Solid State Power Conversion.

517. SPILSBURY & TINDALL LIMITED. (Z-1)

180 East Cordova Street, Vancouver, B.C.

A. J. Spilsbury.

J. Hu, Research Director.

Professional R & D Staff:

Engineers: Electrical 1, Electronic 1.

Scientific and Product Fields of R & D.

Radiotelephone Crystals.

518. SPRAGUE ELECTRIC OF CANADA LIMITED.

10 Bertal Road, Toronto 15, Ontario.

H. S. Marmorek, President.

F. J. Burger, Vice-President and Director of Research.

RESEARCH LABORATORY (Y-1, Y-2)

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Electrolytic Capacitors.

519. SQUARE D. COMPANY CANADA LIMITED.

120 Industry Street, Toronto 15, Ontario.

C. R. Verrier, Chief Engineer.

E. W. Moodie, Chief Engineer.

R & D UNIT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 5.

Scientific and Product Fields of R & D.

Electrical Industrial Control and Distribution Equipment, Circuit Breakers and Electronic Control Systems.

520. STANDARD PAPER BOX LIMITED. (Y-1, Z-1)

6240 Park Avenue, Montreal.

C. N. Moisan, President & General Manager.

M. Lamarche, Director of Manufacturing.

Professional R & D Staff:

Engineers: Chemical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Fiberboard coatings and laminating film and automatic machines for the erection, filling, closing and sealing of folding cartons.

521. STARK ELECTRONIC INSTRUMENTS LIMITED. (Z-1, Z-2)

180 Station Street, Ajax, Ontario.

A. Kasperski, President.

G. R. Snowdon, Chief Engineer.

Professional R & D Staff:

Engineers: Electronic 2.

Scientific and Product Fields of R & D.

Electronic Test Instruments, Audio Teaching Labs, Electronic — Electricity Teaching Aids, and Physics — Teaching Aids.

522. STATICON LIMITED. (Y-1, Z-1)

2220 Midland Avenue, Scarborough, Ontario.

A. M. Hase.

Professional R & D Staff:

Engineers: Electrical 2, Electronic 1.

Scientific and Product Fields of R & D.

Solid state electronic regulating, control and sensing circuitry.

523. THE STEEL COMPANY OF CANADA, LIMITED.

Wilcox Street, Hamilton, Ontario.

H. M. Griffith, President & Chief Executive Officer.

A. D. Fisher, Vice-President, Planning, Eng. & Research.

RESEARCH DEPARTMENT (X-1, Y-1, Z-1)

J. G. Sibakin, Manager — Research & Development.

Professional R & D Staff:

Scientists: Chemistry 4, Geology & other Earth Sciences 1, Physics 2.

Engineers: Chemical 3, Mechanical 2, Metallurgical 17.

Scientific and Product Fields of R & D.

All aspects of Iron and Steel Manufacture.

524. STERLING DRUG LIMITED. (Y-1, Z-1)

Yonge Street S., Aurora, Ontario.

F. A. Tilston, President.

C. W. Birkett, Medical Director.

Professional R & D Staff:

Scientists: Medicine & Dentistry 1.

Scientific and Product Fields of R & D.

Pharmaceuticals.

525. STERNSON LIMITED.

22 Mohawk Street, Brantford, Ont.

F. E. Sterne, President.

F. G. Kerr, Chief Chemist.

STERNSON R & D ESTABLISHMENT (Z-1)

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Concrete Additives, Paint Formulating, Sealant Development & Water Treatment (Boiler Treatment).

526. THE STRONG COBB ARNER COMPANY OF CANADA LIMITED.

575 Niagara Blvd., Fort Erie, Ontario.

J. W. Harlow, Vice-President & General Manager.

W. A. Fritz, Manager, Product Development.

PRODUCT DEVELOPING DEPARTMENT (Y-1, Z-1, Z-2)

Professional R & D Staff:

Scientists: Pharmacy 1.

Scientific and Product Fields of R & D.

Pharmaceutical Products and Cosmetics.

527. STRUCTURAL GLASS LIMITED. (X-1, Y-1, Z-1)

20 Burnett Avenue, Winnipeg 16, Manitoba.

G. Partridge, Vice-President.

D. Malaher, Engineer.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Fibre glass septic tanks, storage tanks, etc.

528. SUN-RYPE PRODUCTS LIMITED.

1165 Ethel St., Kelowna, B.C.

I. F. Greenwood.

C. P. Erridge.

SUN-RYPE PRODUCTS RESEARCH DEPT. (X-1, Y-1, Z-1)

M. L. Coltart, Research Manager.

Professional R & D Staff:

Scientists: Agriculture 1, Chemistry 1.

Engineers: Food 1.

Scientific and Product Fields of R & D.

Dehydration studies, Extraction studies — juices and by-products, Polymer technology and Fruit waste utilization studies.

529. SWING PAINTS LIMITED. (Y-1, Z-1)

2100 St. Patrick Street, Montreal 22, P.Q.

F. M. O'Dea, Vice-President.

F. Stephen.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Paints and other coatings.

530. SYNCRUDE CANADA LIMITED. (X-1, Y-1, Z-1)

200 Baker Building, Edmonton, Alberta.

F. K. Spragins, President & General Manager.

C. W. Bowman, Laboratory Manager.

Professional R & D Staff:

Scientists: Chemistry 3, Geology & other Earth Sciences 1.

Engineers: Chemical 13, Civil 4, Mechanical 2.

Scientific and Product Fields of R & D.

Athabasca Tar Sands.

531. SYNTRON (CANADA) LIMITED. (Y-1, Z-1)

928 Queenston Road, P.O. Box 10, Stoney Creek, Ont.

G. F. Sommer.

A. L. Dean, Manager of Engineering.

Professional R & D Staff:

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Electrical and chemical studies, Product group semi conductors.

532. TAMCO LIMITED.

995 Laurier Drive, La Salle, Windsor 40, Ontario.

L. Neal, Vice-President & General Manager.

S. Kuether, Vice-President, Engineering & Research.

R & D DIVISION, TAMCO LIMITED (Y-1, Z-1)

Professional R & D Staff:

Engineers: Mechanical 2, Metallurgical 1.

Scientific and Product Fields of R & D.

Hydrodynamics: Propeller studies, water-jet propulsion systems, studies on water intakes and discharge areas, developments of special waterjets, bow thrusters for transverse thrust, cold forming and precision hot forming.

533. TAPPAN-GURNEY LIMITED. (Y-1, Z-1)

380 Ste. Croix Boulevard, Montreal 9, Quebec.

C. R. Lair, Executive, Vice-President & Gen. Mgr.

C. N. Hickox, Director of Engineering.

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Electric ranges, gas ranges, dishwashers, food waste disposers and kitchen ventilating hoods.

534. TCF OF CANADA LIMITED.

P.O. Box 159, Cornwall, Ontario.

F. Baker, President.

J. Smelko, Research & Technical Manager.

RESEARCH & TECHNICAL LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

Cellulose and Plastic Packaging Films.

535. TEMPLETON ENGINEERING COMPANY. (Y-1)

528 St. James Street, South Winnipeg 10, Manitoba.

C. H. Templeton.

Professional R & D Staff:

Engineers: Civil 7.

Scientific and Product Fields of R & D.

Permafrost, Tension Piles and Rigid Pavement.

536. TERRATECH LIMITED. (Y-1)

275 Benjamin-Hudon, Montreal, P.Q.

C. Senneville, President.

L. Samson, Vice-President and Managing Director.

Professional R & D Staff:

Engineers: Civil 7.

Scientific and Product Fields of R & D.

Geotechnical surveys for underground work, Geotechnical surveys for foundation work on civil engineering constructions, Research in soil mechanics and Research in frozen soil mechanics.

537. TEXACO CANADA LIMITED.

1425 Mountain Street, Montreal.

F. M. Dawson, President.

J. G. Light, General Manager Refining.

R & D LABORATORY (Y-1, Z-1)

10,260 Notre Dame Street East, Montreal East, P.Q.

W. Drlowski, Process Engineer.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Petroleum Products, Petro chemicals.

538. THOMSON RESEARCH ASSOCIATES LIMITED. (Y-1, Z-1, Y-2, Z-2)

53 Shaw Street, Toronto 3, Ontario.

N. H. Cruickshank.

P. J. Radford, Chief Chemist.

Professional R & D Staff:

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Applied research on Wool Finishing with particular emphasis on shrinkproofing, development work in field of germicides in particular as related to textiles, leather & plastics and yarn and fabric finishes for all types of fibres.

539. TIOXIDE OF CANADA LIMITED. (Y-1, Z-1)

P.O. Box 3, Sorel, Que.

H. Prior, Executive Vice-President & General Manager.

C. Shore, Vice-President (Operations).

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 3.

Scientific and Product Fields of R & D.

New and improved Titanium Oxide Pigments.

540. TMC (CANADA) LIMITED.

R.R. #5, Ottawa, Ontario.

D. V. Carroll, President, Manager & Director.

ENGINEERING DEPARTMENT (Y-1, Z-1, Z-2)

K. Holt, Technical Director.

Professional R & D Staff:

Engineers: Electronic 3.

Scientific and Product Fields of R & D.

Basic electronic communications in the L/F through H/F fields. Single sideband, underwater communications, wide band R/F devices, digital and analog Remote Control devices. General Receivers and transmitters and application of new solid state and micro-electronic devices in same.

541. TONECRAFT PAINTS LIMITED.

10 Carson Street, Toronto 14, Ont.

D. Strongman, President.

H. R. Ankenmann, Technical Director.

LABORATORY (Z-1)

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

Protective coatings.

542. TOPPING ELECTRONICS LTD. (Z-1)

1320 Ellesmere Road, Scarborough, Ont.

F. V. Topping, President.

Professional R & D Staff:

Engineers: Electrical 3.

Scientific and Product Fields of R & D.

Solid State Communications Equipment, Digital Telemetry Equipment, Color TV Converter for B & W TV sets, Intermediate Frequency Filters and Frequency Synthesizers.

543. TORONTO COPPERSMITHING COMPANY LIMITED.

220 Midwest Road, Scarborough, Ontario.

R. F. Gooderham, President.

M. T. Scholtz, Research Director.

RESEARCH LABORATORY (X-1, Y-1)

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Chemical Engineering, Heat Transfer, solids blending.

544. THE TORRINGTON COMPANY LIMITED. (Z-1)

110 River Street, Bedford, P.Q.

G. B. Champagne, President & General Manager.

J. M. Paton, Plant Engineer.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Knitting Machine Needles, Loose Rollers and Bearings.

545. TRIAD OIL COMPANY LIMITED.

535 - 7th Avenue S.W., Calgary 2, Alberta.

J. H. Porter, President.

M. W. Clegg, Project Supervisor.

MARGUERITE LAKE — PILOT PLANT (X-1, Y-1, Z-1)

Professional R & D Staff:

Engineers: Petroleum 3.

Scientific and Product Fields of R & D.

Pilot project to determine the practicality and economic feasibility of producing low gravity crude oils.

546. TRIODETIC STRUCTURES LIMITED. (Z-1, Z-2)

335 Roosevelt Ave., Ottawa 13, Ont.

H. G. Fentiman, Executive Vice-President.

D. T. Wright.

G. M. Proctor, Technical Manager.

Professional R & D Staff:

Engineers: Civil 1, Fabrication Techniques 1.

Scientific and Product Fields of R & D.

Engineering design fabrication and creation of metal space frames and shells primarily for building structures.

547. TRUCK ENGINEERING LIMITED.

165 Wellington Street, South, Woodstock, Ontario.

V. B. King, President.

R. Nixon, Chief Engineer.

DESIGN ENGINEERING DIVISION, ENGINEERING DEPT. (Z-1)

H. Hansen, Supervisor of Design Eng. Div.

Professional R & D Staff:

Engineers: Mechanical 3.

Scientific and Product Fields of R & D.

Heavy Lowbed machinery trailers, logging trailers, dump trailers and special trailers, utility trailers and bodies, hydraulic derricks and associated equipment.

548. UNELCO LIMITED.

103 Gun Street, Pointe Claire, Quebec.

C. J. Pratt, President.

G. R. Ranganath, Vice-President.

R & D SECTION (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Products for the teaching of electricity and electronics at the high school level through to university.

549. UNION CARBIDE CANADA LIMITED.

123 Eglinton Avenue, East, Toronto 12, Ontario.

R. J. Southwell, General Manager.

R. J. Stewart, Manager — Technology.

549A. PACKAGING LABORATORY, FOOD SCIENCE LAB. (Z-1)

59E Howden Road, Scarborough, Ontario.

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Cellulose Meat Casings and Plastic Packaging Applications.

549B. RESEARCH AND DEVELOPMENT LAB. (Y-1, Z-1)

10555 Metropolitan Blvd., Montreal East, P.Q.

O. O. Gray, Manager, Research & Development — Films.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 3, Mechanical 1.

Scientific and Product Fields of R & D.

Polyolefin resins and film manufacturing techniques.

549C. CONSUMER PRODUCTS. (Z-1)
805 Davenport Road, Toronto 4, Ontario.
H. M. Brown, Technology Manager.

Professional R & D Staff:
Engineers: Chemical 4.

Scientific and Product Fields of R & D.
Batteries, Extractive Metallurgy, Carbon Products and Anti-Freeze & Automotive Service Products.

549D. DEVELOPMENT & TECHNICAL SERVICES DEPT. (X-1, Y-1, Z-1, Z-2)
42 Prince Andrew Place, Don Mills, Ontario.
J. W. Ross, Manager, Development & Tech. Services Dept.

Professional R & D Staff:
Engineers: Chemical 1, Electrical 2, Mechanical 4, Metallurgical 1.

Scientific and Product Fields of R & D.
Electrical and electronic controls in welding industry, Gas welding, cutting, and analytical projects, Liquid gas experimental programs such as LN₂ food freezing, Medical equipment and processes and Jet piercing projects for the mining industry.

549E. CHEMICALS AND RESINS. (Y-1, Z-1)
10555 Metropolitan Blvd. East, Montreal East, P.Q.
G. L. Bata, Director of Development.

Professional R & D Staff:

Scientists: Chemistry 19, Physics 1.
Engineers: Chemical 8, Mechanical 1.

Scientific and Product Fields of R & D.
Petrochemicals, Plastics, and Thermosets.

549F. METALS AND CARBON. (Z-1)
P.O. Box 250, Welland, Ontario.
Z. B. Wowk, Manager, Technology, Metals and Carbon.

Professional R & D Staff:

Engineers: Electronic 1, Metallurgical 3.

Scientific and Product Fields of R & D.
Metallurgy of Ferroalloys, specifically Ferromanganese, Ferrochrome, Silico-manganese, Ferrosilicon, Silicon Metal, artificial graphite and carbon, specifically carbon and graphite thermic electrodes electrolytic anodes and special applications.

550. UNIROYAL LIMITED.
550 Papineau Street, Montreal, P.Q.
E. A. Martin, President.
J. C. R. Warren, Co-ordinator, Research & Development.

550A. PAPINEAU FACTORY, DEVELOPMENT DEPT. (Z-1)
1806 Notre Dame Street East, Montreal, P.Q.

O. R. Huggenberger, Manager, Development Dept.

Professional R & D Staff:

Scientists: Chemistry 9.
Engineers: Chemical 2, Metallurgical 1.

Scientific and Product Fields of R & D.
Rubber and plastic products such as development of new and/or improved: Industrial belts, hose, roll coverings, tank linings, moulded goods, coated fabrics and processes for these.

550B. GENERAL PRODUCTS, ST. JEROME PLANT, DEVELOPMENT DEPT. (Z-1)
St. Jerome, P.Q.
R. D. Habel, Manager, Technical Dept., 51 Breithaupt St., Kitchener, Ont.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.
Rubber and plastic products such as: Crash pads, fuel cells, clothing.

550C. GENERAL PRODUCTS FACTORIES TECHNICAL DEPT. (Z-1)
51 Breithaupt Street, Kitchener, Ont.
R. D. Habel, Manager, Technical Dept.

Professional R & D Staff:

Scientists: Chemistry 5.
Engineers: Chemical 4.

Scientific and Product Fields of R & D.
Rubber and plastic foam and sponge rubber, coated fabrics, crash pads, fuel cells, textile products, insulation and processes for these.

550D. TIRE FACTORY, DEVELOPMENT DEPT. (Z-1)
149 Strange Street, Kitchener, Ontario.
W. R. Smith, Manager, Product Development Dept.

Professional R & D Staff:

Scientists: Chemistry 3, Physics 1.

Scientific and Product Fields of R & D.
Tires and tubes, passenger, heavy duty, off the road and aircraft.

550E. UNIROYAL RESEARCH LABORATORIES. (X-1, Y-1)
120 Huron Street, Guelph, Ontario.
J. C. R. Warren, Co-ordinator, Research & Development.

Professional R & D Staff:

Scientists: Chemistry 43, Mathematics 1, Pharmacy 1, Physics 3, Biochemistry 3.
Engineers: Chemical 6.

Scientific and Product Fields of R & D.
Basic research in organic chemicals, including agricultural chemicals such as herbicides, insecticides, rubbers and other elastomers and plastics, as well as in engineering, polymerization, chemical reactions, physical properties of materials, and computer technology.

550F. CHEMICAL DIVISION. (Y-1, Z-1)

Elmira, Ontario.

F. M. Hager, Development Manager.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 4.

Engineers: Chemical 7.

Scientific and Product Fields of R & D.

Agricultural Chemicals, Plastics (Polyesters), Rubber Chemicals and Industrial Organic Chemicals.

550G. DEVELOPMENT DEPT., CHEMICAL DIVISION. (Z-1)

Elmira, Ontario.

F. M. Hager, Manager, Development Dept.

Professional R & D Staff:

Scientists: Chemistry 7, General 1.

Engineers: Chemical 8, Engineering Science 1.

Scientific and Product Fields of R & D.

New and/or improved rubber, industrial and agricultural chemicals, polyesters and other resins, and of processes, including pilot plant, for these.

550H. CHEMICAL DIVISION DEVELOPMENT DEPT. (Z-1)

8145 - 4th Ave., Ville d'Anjou, P.Q.

F. M. Hager, Manager, Development Dept. (Elmira, Ont.).

Professional R & D Staff:

Scientists: Biology 1, Chemistry 3.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

New and/or improved reclaim rubbers and polymers, construction products, latices and adhesives, and processes for these.

551. UNITED AIRCRAFT OF CANADA LIMITED.

P.O. Box 10, Longueuil, Quebec.

T. E. Stephenson, President.

E. L. Smith, Vice-President, Engineering.

551A. AIRCRAFT POWERPLANT MFG. OPERATIONS. (Y-1, Z-1, Y-2)*Professional R & D Staff:*

Engineers: Mechanical 200.

Scientific and Product Fields of R & D.

Gas turbines and associated components including compressors, combustors, turbines, materials and instrumentation.

551B. INDUSTRIAL & MARINE DIVISION. (Y-1, Z-1, Y-2, Z-2)

840 Taschereau Blvd., Greenfield Park, Quebec.

E. A. Clifford, Chief Engineer.

Professional R & D Staff:

Scientists: Physics 5.

Engineers: Aeronautical 4, Civil 2, Electrical 6, Electronic 1, Mechanical 33.

Scientific and Product Fields of R & D.

Marine Propulsion Systems, Electric Peaking Packages, Gas Pumping Package and Vehicle Propulsion Packages.

551C. HELICOPTER & SYSTEMS DIVISION. (Y-1, Y-2, Z-2)

P.O. Box 10, Longueuil, Quebec.

H. G. Bruce, Chief Systems Engineer.

Professional R & D Staff:

Scientists: Mathematics 1, Physics 1, Other 3.

Engineers: Electrical 3, Electronic 1, Mechanical 11.

Scientific and Product Fields of R & D.

ASW Studies using helicopters, Trial installations of new sensors, navigation systems, etc. in helicopters used in ASW operations and Preliminary designs and prototype manufacture of engine pods, new installations, etc.

552. UNITED-CARR CANADA LIMITED.

455 Arvin Avenue, Stoney Creek, Ontario.

R. M. Healey, President.

Frank Edwards, Engineer.

UNITED-CARR CANADA LIMITED (Z-1)

Craig Street, Brantford, Ontario.

Professional R & D Staff:

Engineers: Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.

Electronic Safety Devices for Automobiles and Electronic Devices for Television.

553. UNITED SHOE MACHINERY COMPANY OF CANADA LTD.

4545 Hochelaga Street East, Montreal.

K. W. Ogden.

A. Hogue, Manager, Manufacturing & Laboratories.

CHEMICAL DIVISION, UNITED SHOE MACHINE CO. OF CAN. (Y-1, Z-1)*Professional R & D Staff:*

Scientists: Chemistry 3.

Scientific and Product Fields of R & D.

Adhesives: Latex, Solvent, Thermoplastic.

554. UNITRON INDUSTRIES LIMITED. (Y-1, Z-1)

685 Wabamaki Drive, Kitchener, Ontario.

F. D. Stork, President.

R. Strothmann, Vice-President.

Professional R & D Staff:

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Hearing Aids.

555. UNIVERSAL WIRE & CABLE COMPANY LIMITED.

9250 Hochelaga Street, Montreal 430, P.Q.

L. Finkelstein, Vice-President & General Manager.

T. J. Walling, Manager of Product Development, Engineering and Research.

DEPARTMENT OF PRODUCT DEVELOPMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Research & Development pertaining to the improvement and manufacture of Magnet Wire, Textile served wires, and Litz Wires. Research & Development pertaining to improved manufacturing processes of both Aluminum and Copper Wire.

556. VACHON INCORPORATED. (Z-1)

Sainte-Marie, Beauce, Que.

J. C. Bedard, Director of Production.

Professional R & D Staff:

Scientists: Chemistry 2.

Engineers: Chemical 2, Mechanical 1.

Scientific and Product Fields of R & D.

Plastification of shortening and continuous manufacture of flaky pastry.

557. VALERIOTE ELECTRONICS (GUELPH) LTD. (Y-1, Z-1, Y-2, Z-2, Y-3, Z-3)

P.O. Box 603, Guelph, Ontario.

M. O. Valeriote, President & General Manager.

P. T. Valeriote, Vice-President.

Professional R & D Staff:

Scientists: 2.

Engineers: Electronic 1.

Scientific and Product Fields of R & D.

Epoxy glass products, and Electronic components and equipment.

558. VALVOLINE OIL CO. LTD. (X-1)

31 Industrial Avenue, Toronto, Ontario.

R. C. Burrows.

ADM CHEMICALS DIV.

200 Fairbanks Avenue, Toronto 19, Ontario.

S. A. Cooke, General Manager.

Professional R & D Staff:

Scientists: Chemistry 2.

Scientific and Product Fields of R & D.

Recovery of metals (Solvent extraction water purification).

559. VAN CAMP PRODUCTS AND SALES LIMITED.

60 Clarkson Avenue, Toronto 10, Ontario.

H. N. Van Camp, President.

W. T. Van Camp, Chief Chemist.

VAN CAMP LABORATORY (Y-1, Z-1)

Professional R & D Staff:

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Phosphate Coatings on Metal Surfaces and Rust Prevention Products.

560. VAPOR CANADA LIMITED. (Z-1)

3955 Courtrai Avenue, Montreal, Que.

G. H. Coull, Executive Vice-President.

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 2.

Scientific and Product Fields of R & D.

Electrical and mechanical products for the transportation industry.

561. VARIAN ASSOCIATES OF CANADA LIMITED. (Z-1, Y-2)

45 River Drive, Georgetown, Ontario.

B. H. Breckenridge, President.

E. R. Smith, Chief Engineer.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Electrical 5.

Scientific and Product Fields of R & D.

Millimetre klystrons and extended interaction oscillators, Traveling wave tubes, Thermionic.

562. VELAN ENGINEERING LIMITED.

2125 Ward Avenue, Montreal 9, Que.

A. K. Velan, President.

F. Jorgensen, Chief Engineer — Valves.

HIGH PRESSURE TEMPERATURE RESEARCH LAB.

(Y-1, Z-1, Y-2, Z-2)

G. Breton, Chief Engineer — Traps.

Professional R & D Staff:

Engineers: Mechanical 12.

Scientific and Product Fields of R & D.

High pressure-temperature technology for the oil refineries, petro-chemical and power fields, in steam traps and valves.

563. VIAU LIMITED. (Y-1, Z-1)

4945 Ontario Street, Montreal 404, P.Q.

G. Lortie, Managing Director.

R. Leduc, Chemist.

Professional R & D Staff:

Scientists: Chemistry 1.

Scientific and Product Fields of R & D.

Biscuits and Candies.

564. VIBRO-ACOUSTICS LIMITED.

16 Lesmill Road, Don Mills, Ontario.

J. E. Marks, President.

J. F. Guenther, General Manager and Technical Director.

ACOUSTICS LABORATORY (Y-1, Z-1, Y-2, Z-2)

Professional R & D Staff:

Engineers: Mechanical 4, Physics 1.

Scientific and Product Fields of R & D.

Products to silence mechanical equipment and for architectural noise control.

565. VULCAN EQUIPMENT COMPANY LIMITED. (Z-1)

95 Research Road, Toronto 17, Ontario.

B. D. Alm, President.

L. Bubik.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Lifting Devices in the automotive after market.

566. WARNER-LAMBERT CANADA LIMITED.

2200 Eglinton Avenue East, Scarborough, Ontario.

D. B. McCaskill, President.

E. Blaser, Manager Quality Control, Research & Development.

R & D LABORATORIES (Y-1, Z-1)

Professional R & D Staff:

Scientists: Chemistry 3, Pharmacy 1.

Scientific and Product Fields of R & D.

Antacids, Antiperspirants, pharmaceuticals and cosmetics, Improved manufacturing processes, and New package compatibility studies.

567. WARNER-LAMBERT RESEARCH INSTITUTE OF CANADA LTD. (X-1, Y-1, X-3)

2200 Eglinton Avenue E., Scarborough, Ontario.

G. Lumb, Vice-President & Director.

F. A. de la Iglesia, Director of Toxicology.

Professional R & D Staff:

Scientists: Biology 7, Chemistry 3, Medicine & Dentistry 8.

Scientific and Product Fields of R & D.

Safety testing of drugs and Basic Medical Research.

568. WARNOCK HERSEY INTERNATIONAL LIMITED. (Z-1, Y-2, Z-2)**COAST ELDRIDGE PROFESSIONAL SERVICES DIV.**

125 East 4th Avenue, Vancouver 10, B.C.

B. F. Bailey, General Manager.

G. E. Maynard, Director of Testing.

Professional R & D Staff:

Scientists: Chemistry 6, Pharmacy 1.

Engineers: Civil 2, Chemical 1, Mechanical 3, Metallurgical 1.

Scientific and Product Fields of R & D.

Construction (Materials evaluation and application) Mining (Assaying Methodology) Product Evaluation (general analytical of simulation testing) Food and Drug (quality control development) Microtoxicology (research into drug detection for race track control).

569. WATER SPYDER MARINE LIMITED. (Z-1)

157 Richard Clark Drive, Downsview, Ontario.

J. F. Lstiburek.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Development of hydrofoil boats.

570. WELWYN CANADA LIMITED.

1255 Brydges Street, London, Ontario.

R. Wilton, President.

J. P. Marton, Chief of Research.

RESEARCH DEPARTMENT (X-1, Y-1)

Professional R & D Staff:

Scientists: Physics 7.

Scientific and Product Fields of R & D.

Solid State Physics; Thin films of metals and semi-conductors and Optical and electrical properties of conductive materials in bulk and film forms, Crystal Growth and Film Deposition Techniques as applied to Resistor Technology in General.

571. WESTEEL-ROSCO LIMITED.

1 Atlantic Avenue, Toronto 3, Ontario.

R. M. Calhoun.

H. L. A. M. Levelt, Manager, Research & Development.

R & D DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:

Engineers: Civil 2, Mechanical 3.

Scientific and Product Fields of R & D.

Products (primarily metal) for construction, agricultural storage, highway and drainage fields.

572. WESTERN CO-OPERATIVE FERTILIZERS LTD. (X-1, Y-1, Z-1, Y-3)

P.O. Box 2500, Calgary, Alberta.

D. A. Sim, Chief Executive Officer.

K. F. Nielsen, Director of Planning & Product Dev.

Professional R & D Staff:

Scientists: Agriculture 3.

Engineers: Chemical 13, Electrical 1, Mechanical 3, Mining 1.

Scientific and Product Fields of R & D.

Agronomic requirement for fertilizers.

573. WESTERN GYPSUM LIMITED. (Y-1, Z-1)

2650 Lakeshore Hwy., Clarkson, Ont.

N. W. Puttock.

D. E. Harvey, Manager Laboratory Services.

Professional R & D Staff:

Scientists: Chemistry 3.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Basic gypsum products, jointing materials for drywall systems, lime, perlite, etc.

574. FRANK WHEATLEY INDUSTRIES LIMITED. (Z-1)

4616 Manhattan Road S.E., Calgary 24, Alberta.

A. P. Varro, Vice-President & General Manager.

R. R. Ferris.

Professional R & D Staff:

Engineers: Mechanical 1, Petroleum 1.

Scientific and Product Fields of R & D.

Oil and gas well supplies and equipment.

575. WOLVERINE TUBE DIVISION. (Z-1)

P.O. Box 5115, London, Ontario.

E. W. Ervasti, President and General Manager.

R. B. Stotts, Director of Technical Services.

Professional R & D Staff:

Engineers: Metallurgical 2.

Scientific and Product Fields of R & D.

Casting, Hot working, Cold working, copper, copperbase alloys.

576. WORTHINGTON (CANADA) LIMITED. (X-1, Y-1)

P.O. Box 40, Brantford, Ontario.

H. D. Allan, President.

H. Badowski, Director of Research.

Professional R & D Staff:

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Centrifugal Pump Inducers, Control Valves and Controls (Fluidics).

577. JOHN WYETH & BROTHER (CANADA) LIMITED. (Z-1)

P.O. Box 1600, Windsor, Ontario.

L. S. Hernandez, President and General Manager.

J. W. Jenkins, Technical Division Manager.

Professional R & D Staff:

Scientists: Chemistry 2, Pharmacy 1.

Scientific and Product Fields of R & D.

Pharmaceuticals.

578. YELLOWKNIFE BEAR MINES LIMITED.

Suite 1002, 80 Richmond Street W., Toronto 1, Ontario.

J. D. Streit, President.

R. G. Price.

THERMAL STEAM INJECTION OIL RECOVERY PROJECT (Z-1)

Cold Lake, Alberta, Sec 15 Th. 64 Rg 3 W 4th.

Professional R & D Staff:

Engineers: Petroleum 1.

Scientific and Product Fields of R & D.

The development of a process to economically recover viscous crude oil from the Cummings and Sparky sands of the Mannville formation in the Cold Lake area of East Central Alberta.

579. YORK GEARS LIMITED.

825 Caledonia Road, Toronto 19, Ontario.

S. R. Palmer, General Manager.

H. R. Stratford, Manager, Product Design.

PRODUCT DESIGN DEPARTMENT (Y-1, Z-1)*Professional R & D Staff:*

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Circular Arc Profile Helical Gearing Long Stroke Shock Absorber for aircraft.

580. S. E. YOUNG RESEARCH LABORATORIES LIMITED. (Y-1, Z-1, Y-2, Z-2)

222 Adelaide Street, West, Toronto 1, Ontario.

S. E. Young, President.

K. Mueller, Director of Research.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 1, Chemistry 5, Pharmacy 1.

Engineers: Food 1.

Scientific and Product Fields of R & D.

Drugs, Foods, Oils, Flour & Feeds, Bacteriological examinations, Chemical specialties, Cosmetics, Air & water pollution, Soaps & Detergents, Textiles, metals, Fine Chemicals, etc.

SECTION 2. (581 — 591)

PRIVATE NON-PROFIT ORGANIZATIONS

581. ALBERTA DAIRYMEN'S ASSOCIATION.

P.O. Box 802, Red Deer, Alberta.

D. R. Marshall, President.

RESEARCH UNIT (Y-1, Y-2)

Department of Food Science, University of Alberta.

J. G. Armstrong, Officer-in-Charge

Professional R & D Staff:

Scientists: Food Scientists 5.

Scientific and Product Fields of R & D.

Butterfat oxidation, Butter quality and manufacture, Quality and processing of other dairy products and Potato quality.

582. ALBERTA SULPHUR RESEARCH LTD.

c/o Canadian Fina Oil Limited, 736 - 8th Ave., Calgary 2.

J. E. Baugh, President.

J. B. Hyne, Director of Research.

FUNDAMENTAL SULPHUR RESEARCH GROUP, ALBERTA

SULPHUR RESEARCH LTD. (X-1, Y-1, X-3)

c/o Dept. of Chemistry, University of Calgary, Calgary, Alberta.

Professional R & D Staff:

Scientists: Chemistry 5.

Scientific and Product Fields of R & D.

The chemistry and technology of sulphur and sulphur compounds related to the operation of sour gas wells and production of sulphur in Western Canada.

583. BREWERS ASSOCIATION OF CANADA.

66 Lisgar Street, Ottawa 4, Ontario.

M. R. Jack, President and General Manager.

BREWING & MALTING BARLEY RESEARCH INSTITUTE

(X-3, Y-3, Z-3)

206 Grain Exchange, Winnipeg 2, Manitoba.

W. W. Sisler, Managing Director.

Professional R & D Staff:

Scientists: Agriculture 1, Chemistry 1.

Scientific and Product Fields of R & D.

Malting Barley — Research and development.

584. CANADIAN GAS ASSOCIATION.

55 Scarsdale Rd., Don Mills, Ontario.

W. H. Dalton.

H. Wank, Director of Laboratory & Engineering.

APPROVALS DIVISION, RESEARCH & DEVELOPMENT

(Z-1, Z-2, Z-3)

Professional R & D Staff:

Engineers: Chemical 2, Civil 1, Electrical 1, Mechanical 3, Mining 1.

Scientific and Product Fields of R & D.

Forced air furnace heat exchange research program, Automatic storage water heater research program — corrosion, liming, bumping, stacking. Burner research, proposed.

585. CONNAUGHT MEDICAL RESEARCH LABORATORIES. (X-1, Y-1, Z-1)

1755 Steeles Avenue W., Willowdale, Ontario.

J. K. W. Ferguson, Director.

Professional R & D Staff:

Scientists: Agriculture 3, Biology 15, Chemistry 21, Mathematics 1, Medicine & Dentistry 6, Pharmacy 4, Veterinary 5.

Scientific and Product Fields of R & D.

Pharmaceuticals.

586. LOGGING RESEARCH ASSOCIATES. (X-1, Y-1, Z-1)

2050 Mansfield Street, Montreal 110, P.Q.

D. D. Hamilton, Manager.

R. Ranzenhofer, Chief Engineer.

Professional R & D Staff:

(ENGINEERS)

Scientific and Product Fields of R & D.

Logging Research Associates is a joint-venture by Canadian International Paper Company, Abitibi St. Anne Paper Ltd. and Quebec North Shore Paper Company for the purpose of developing pulpwood harvesting equipment.

587. NATIONAL CONCRETE PRODUCERS' ASSOCIATION.

Suite 101, 3500 Dufferin Street, Downsview, Ont.

B. M. Rigatti, Executive Secretary.

L. W. Allen, Concrete Producers' Research Fellow.

RESEARCH FELLOWSHIP AT DIV. BLDG. (X-1)

Division of Bldg., Research, NRC, Ottawa, Ontario.

L. W. Allen, Concrete Producers' Research Fellow.

Professional R & D Staff:

Engineers: Civil 1.

Scientific and Product Fields of R & D.

Fire Research program on concrete masonry units.

588. PLYWOOD MANUFACTURERS OF B.C. DIV. FOREST IND.

#310 - 1477 West Pender Street, Vancouver 5, B.C.

F. N. Walsh, General Manager.

A. J. McGraw, Technical Dept. Manager.

PLYWOOD MAN. OF B.C. STRUCTURAL TESTING LAB.

(X-1, Y-1, Z-1)

735 West 15th Street, North Vancouver, B.C.

Professional R & D Staff:

Engineers: Civil 2, Mechanical 3.

Scientists: 1.

Scientific and Product Fields of R & D.

Development of new end uses and structural design procedures; improvement of existing uses and procedures, Determination of plywood physical properties by strength tests and Codes and Standards development.

589. PULP AND PAPER RESEARCH INSTITUTE OF CANADA. (X-1, Y-1, Z-1, X-3)

570 St. John's Road, Pointe Claire, Quebec.

P. R. Gendron, President.

R. de Montigny, Vice-President (Scientific).

Professional R & D Staff:

Scientists: Biology 3, Chemistry 29, Geology 1, Mathematics 3, Physics 7.

Engineers: Chemical 6, Forestry 9, Mechanical 2.

Scientific and Product Fields of R & D.

Fundamental and applied research in the fields of woodlands operations and pulp and paper mill operations.

590. QUEBEC ASBESTOS MINING ASSOCIATION.
580 Grande-Allée Est, Room 320, Quebec 4, P.Q.
W. W. Oughtred, President.
W. H. Foster, Chairman.

EXPERIMENTAL & RESEARCH LABORATORY
(X-1, Y-1, Y-2, X-3, Y-3, Z-3)
Faculty of Science, University of Sherbrooke.
Marcel Cossette, Director.

Professional R & D Staff:
Scientists: Medicine & Dentistry 2.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
Biological effects of asbestos, Counting of particles by photographic techniques, Development of testing procedures, Development of processes for extracting asbestos fibres, Atmospheric pollution caused by asbestos.

591. TORONTO HARBOUR COMMISSIONERS. (X-1, Y-1, Z-1)
60 Harbour Street, Toronto 1, Ontario.
E. B. Griffith, General Manager.
J. H. Jones, Chief Engineer.

Professional R & D Staff:
Scientists: Geology & other earth Sciences 1.
Engineers: Civil 5.

Scientific and Product Fields of R & D.
Shore Stabilization by use of Construction Excavation Materials to Create Beaches.

592. BISHOP'S UNIVERSITY. (X-3)

Lennoxville, Que.

C. L. O. Glass, Principal.

J. W. McCubbin, Dean of Science.

Professional R & D Staff:

Scientists: Biology 4, Chemistry 6, Physics 2.

Scientific and Product Fields of R & D.

Biology, Chemistry, Physics.

593. BROCK UNIVERSITY.

St. Catharines, Ontario.

James A. Gibson, President.

593A. DEPARTMENT OF BIOLOGICAL SCIENCES. (X-1)

Glenridge Campus.

B. M. Millman, Chairman of Department.

Professional R & D Staff:

Scientists: Biology 6.

Scientific and Product Fields of R & D.

Cell and molecular biology, Vertebrate histology, Plant biochemistry, Microbiology and Animal physiology.

593B. DEPARTMENT OF CHEMISTRY. (X-1)

E. A. Cherniak, Professor of Chemistry, Chairman.

Professional R & D Staff:

Scientists: Chemistry 17.

Scientific and Product Fields of R & D.

Spectroscopy, Chemical Kinetics and Mechanisms, Inorganic and organic chemistry.

593C. DEPT. GEOLOGICAL SCIENCES. (X-1, Y-1, X-2, Y-2, X-3, Y-3, Z-3)

J. Terasmae, Professor.

Professional R & D Staff:

Scientists: Geology 4.

Scientific and Product Fields of R & D.

Limnogeology, Pleistocene geology, Sedimentology, Geochronology, Geomorphology, Hydrogeology, Paleocology, Palynology, Paleobotany, Geothermometry, Petrogenesis.

593D. PHYSICS DEPARTMENT. (X-1)

C. A. Flint, Chairman, Professor.

Professional R & D Staff:

Scientists: Physics 7.

Scientific and Product Fields of R & D.

Solid-State Physics (Defects in Crystals, Dislocations, 11-V1 Compounds, Blocking) Laser Raman Spectroscopy (High Resolution Studies of Gases, Liquid and Solid State) Interaction of Phonons and Electrons, Phonon Dispersion Curves (Theoretical Calculation).

594. CARLETON UNIVERSITY.

Colonel By Drive, Ottawa 1, Ontario.

A. D. Dunton, President, Dean of Faculty.

VARIOUS DEPARTMENTS (X-1, Y-1, X-3, Y-3)

Colonel By Drive, Ottawa 1, Ontario.

Professional R & D Staff:

Scientists: Biology 19, Chemistry 14, Geology & other Earth Sciences 9, Mathematics 8, Physics 10.

Engineers: Civil 5, Electrical 9, Mechanical 9.

Scientific and Product Fields of R & D.

Engineering and Science.

595. DALHOUSIE UNIVERSITY.

Halifax, N.S.

H. D. Hicks.

VARIOUS DEPARTMENTS (X-2, Y-2, X-3)

Halifax, N.S.

Professional R & D Staff:

Scientists: Biology 25, Chemistry 24, Geology and other Earth Sciences 15, Mathematics 16, Pharmacy 7, Physics 22.

Scientific and Product Fields of R & D.

Research is carried out in the fields of Biology, Chemistry, Geology, Mathematics, Oceanography, Physics and Psychology.

596. LAKEHEAD UNIVERSITY. (X-2, Y-2, X-3, Y-3)

Port Arthur, Ont.

W. G. Tamblyn, President.

John Hart, Dean of Science.

Professional R & D Staff:

Scientists: Biology 7, Chemistry 7, Geology & other Earth Sciences 4, Mathematics 9, Physics 6, Technologists 2.

Engineers: Aeronautical 1, Civil 1, Forestry 4, Pulp and Paper 2.

Scientific and Product Fields of R & D.

Dielectrics and Electrical Insulation, Pulp and Paper, Ecology and Pollution, Aerodynamics, Operational Research.

597. MCGILL UNIVERSITY. (X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

805 Sherbrooke St. West, Montreal, Que.

H. Locke Robertson, Principal & Vice-Chancellor.

Professional R & D Staff:

Scientists: Agriculture 43, Biology 21, Chemistry 29, Geology 26, Mathematics 27, Medicine & Dentistry 197, Physics 2.

Engineers: Chemical 10, Civil 9, Electrical 12, Mechanical 11, Metallurgical 3, Mining 5.

Scientific and Product Fields of R & D.

Research and Development in the Physical and Biological Sciences.

598. McMASTER UNIVERSITY.

Hamilton, Ontario.

H. G. Thode, President.

A. N. Bourns, Vice-President, Science.

598A. FACULTY OF ENGINEERING. (X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

J. W. Hodgins, Dean of the Faculty of Engineering.

Professional R & D Staff:

Engineers: Chemical 10, Civil 9, Electrical 9, Mechanical 10, Metallurgical 8.

Scientific and Product Fields of R & D.

Chemical Engineering, Electrical Engineering, Mechanical Engineering, Metallurgical Engineering, Civil Engineering.

598B. FACULTY OF SCIENCE. (X-1, X-2, X-3)

D. R. McCalla, Dean of the Faculty of Science.

Professional R & D Staff:

Scientists: Biology 15, Chemistry 32, Geology 20, Mathematics & Applied Math. 26, Physics 23, Psychology 17.

Scientific and Product Fields of R & D.

Biochemistry, biology, chemistry, experimental psychology, geography, geology and geochemistry, mathematics, and physics with particular emphasis on Nuclear and solid state physics.

598C. INSTITUTE FOR MATERIALS RESEARCH.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Professional R & D Staff:

Scientists: Chemistry 15, Geology 4, Physics 55, Materials Science 5. Engineers: Chemical 6, Civil 1, Electrical 28, Metallurgical 43.

Scientific and Product Fields of R & D.

Civil Engineering, chemical engineering, electronics, geology, metallurgy, solid state chemistry, solid state physics.

598D. CENTRE FOR APPLIED RESEARCH & ENGINEERING.

(Y-1, Z-1, X-2, Y-2, Z-2)

McMaster U., Hamilton, Ont.

M. C. deMalherbe, Prof. of Mechanical Engineering.

Professional R & D Staff:

C.A.R.E.D. draws from all members of the Faculty of McMaster University.

Scientific and Product Fields of R & D.

Engineering Sciences and Humanities.

599. MEMORIAL UNIVERSITY OF NEWFOUNDLAND.

St. John's, Newfoundland.

Lord Taylor of Harlow, Pres. & Vice-Chancellor.

MARINE SCIENCES RESEARCH LABORATORY

(X-1, Y-1, X-2, Y-2, X-3)

Logy Bay, St. John's East, Newfoundland.

Frederick A. Aldrich, Director.

Professional R & D Staff:

Scientists: Biology 12, Medicine & Dentistry 1, Psychology 2.

Scientific and Product Fields of R & D.

Systematics and biology of marine organisms, Physiology of vertebrates and invertebrates, Ethology of fishes and invertebrates, Pollution of marine environment, Marine microbiology.

600. MOUNT ALLISON UNIVERSITY. (X-3)

Sackville, N.B.

L. H. Cragg, President.

Professional R & D Staff:

Scientists: Biology 6, Chemistry 11, Geology 4, Mathematics 4, Physics 5, Nutrition 1.

Engineers: Electronic 2, Mechanical 1.

Scientific and Product Fields of R & D.

General R and D in the fields of chemistry, biology, physics, earth sciences, etc.

601. NOVA SCOTIA TECHNICAL COLLEGE.

1360 Barrington Street, Halifax, N.S.

T. J. Gray, Director.

ATLANTIC INDUSTRIAL RESEARCH INSTITUTE (Y-2, Z-2, X-3, Y-3)*Professional R & D Staff:*

Scientists: Chemistry 1, Mathematics 4, Physics 1, Architecture 6.

Engineers: Chemical 8, Civil 14, Electrical 11, Mechanical 8, Mining 7 Industrial 3.

Scientific and Product Fields of R & D.

General R & D in the fields of electrical, mineral, chemical, civil, industrial, mechanical and architecture.

602. QUEEN'S UNIVERSITY.

Kingston, Ont.

J. J. Deutsch, Principal.

602A. PHYSICS DEPARTMENT. (X-3)

A. T. Stewart, Head.

Professional R & D Staff:

Scientists: Physics 28.

Scientific and Product Fields of R & D.

Nuclear Physics, Radio Astronomy, various areas of Solid State Physics.

602B. DEPARTMENT OF BIOLOGY. (X-1, Y-1)

B. N. Smallman, Head of Dept.

Professional R & D Staff:

Scientists: Biology 18.

Scientific and Product Fields of R & D.

Plant physiology, Biochemistry, invertebrate physiology, genetics, ecology.

602C. CHEMISTRY DEPT. (X-1)

R. McIntosh, Professor of Chemistry and Head of Dept.

Professional R & D Staff:
Scientists: Chemistry 104.

Scientific and Product Fields of R & D.
Physical, inorganic, organic and theoretical chemistry.

602D. DEPARTMENT OF CHEMICAL ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Dupuis Hall.

R. H. Clark, Chairman.

Professional R & D Staff:
Scientists: Mathematics 1.
Engineers: Chemical 10.

Scientific and Product Fields of R & D.
Chemical Engineering research in mass transfer, heat transfer and fluid dynamics are receiving attention but more emphasis is being placed on the investigation of complex transport systems and studies in the vital areas of applied chemistry and the mathematical analysis of Chemical Engineering systems and data. The department also has a growing interest in biochemical engineering work.

602E. DEPARTMENT OF CIVIL ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Ellis Hall.

A. Brebner, Head.

Professional R & D Staff:
Engineers: Civil 17.

Scientific and Product Fields of R & D.
Hydraulic and hydrological, structural, geotechnical, transportation.

602F. DEPT. OF ELECTRICAL ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Fleming Hall.

C. H. R. Campling Head.

Professional R & D Staff:
Engineers: Electrical 17.

Scientific and Product Fields of R & D.
Systems — Studies in linear and non-linear systems, with applications to electric networks and control. Communications — Radio astronomy, communication systems and electromagnetics. Electronics — Digital systems & solid state devices. Biomedical electronics under consideration. Energy processing — Power systems and energy conversion centred upon power semi-conductor circuits.

602G. MILLER RESEARCH LABORATORIES. (X-1, Y-2, X-3, Y-3)
Dept. of Geological Sciences.

H. R. Wynne-Edwards, Professor & Head.

Professional R & D Staff:
Scientists: Geology 49.
Engineers: Other 14.

Scientific and Product Fields of R & D.
Economic Geology, petrology and geochemistry, biostratigraphy and sedimentology, geophysics. Equipment includes X-ray fluorescence and diffraction apparatus, 2 metre spectrograph electron microprob, mass spectrometer, gas mixers high pressure furnaces & optical & microscopic equipment.

602H. DEPT. OF MECHANICAL ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

McLaughlin Hall.

P. G. Hill, Head.

Professional R & D Staff:
Engineers: Mechanical 11.

Scientific and Product Fields of R & D.
Areas of stress analysis, heat transfer, design, control systems, metal cutting, fluid flow, and systems engineering.

602I. DEPT. OF METALLURGICAL ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Nicol Hall.

W. B. F. Mackay, Head.

Professional R & D Staff:
Engineers: Metallurgical 8.

Scientific and Product Fields of R & D.
Mineral Engineering, Extractive Metallurgy, Physical Metallurgy—including Mechanical Metallurgy and Metals Physics.

602J. DEPT. OF MINING ENGINEERING.
(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Nicol Hall.

A. Bauer, Head.

Professional R & D Staff:
Engineers: Mining 6.

Scientific and Product Fields of R & D.
Rock properties, failure mechanisms in rock, operations research applied to different mining situations, dust and radiation control, mine valuation.

603. ST. DUNSTAN'S UNIVERSITY.
Charlottetown, P.E.I.

(Rev.) J. C. Ceverie, Department Head.

BIOLOGY DEPARTMENT (Y-2, X-3, Y-3)

Professional R & D Staff:
Scientists: Biology 3.

Scientific and Product Fields of R & D.
Wildlife Biology — Upland Game Birds Plant collection, identification Seaweed Extract testing.

604. SAINT MARY'S UNIVERSITY.
Robie St., Halifax, Nova Scotia.H. J. Labelle, President.
W. A. Bridgeo, Dean of Science.WATER AND FOG LABORATORY (X-2, Y-2)
Robie St., Halifax, N.S.

E. R. Hayes, Chairman Chemistry Department.

Professional R & D Staff:

Scientists: Chemistry 5.

Engineers: Civil 1.

Scientific and Product Fields of R & D.

1. Fog demersal Chemistry of formation.
2. Removal of solids from aqueous slurries.
3. Removal of trace amounts of metals from water.

605. SIMON FRASER UNIVERSITY.

Burnaby, B.C.

B. P. Beirne.

PESTOLOGY CENTRE (X-3, Y-3, Z-3)

Professional R & D Staff:

Scientists: Biology 11.

Scientific and Product Fields of R & D.

Integrated control and management of pest organisms.

606. SIR GEORGE WILLIAMS UNIVERSITY.

1435 Drummond St., Montreal, Que.

R. C. Rae, Principal.

606A. FACULTY OF ENGINEERING. (X-2, Y-2, Z-2, X-3, Y-3, Z-3)*Professional R & D Staff:*

Engineers: Civil 9, Electrical 10, Mechanical 9, Metallurgical 1, Computer Science 2.

Scientific and Product Fields of R & D.

R & D in the following fields — Physics, Biology, Chemistry and Engineering.

606B. GRADUATE STUDIES. (X-1)

Martin Lewis, Dean.

Professional R & D Staff:

Scientists: Biology 6, Chemistry 12, Geology 1, Mathematics 2, Physics 10.

Scientific and Product Fields of R & D.

Chemistry, Molecular Structure, Physics, Solid State, Biology, Limnology.

607. TRENT UNIVERSITY.

Peterborough, Ont.

607A. BIOLOGY DEPARTMENT. (X-1, Y-1, X-3, Y-3)

R. L. Edwards, Professor.

Professional R & D Staff:

Scientists: Biology 8.

Scientific and Product Fields of R & D.

Fresh water biology including bottom muds. Algae, zooplankton, water chemistry, fish population, fish parasites and fungi.

607B. CHEMISTRY DEPARTMENT. (X-3)

G. O. Aspinall, Professor.

Professional R & D Staff:

Scientists: Chemistry 16.

Scientific and Product Fields of R & D.

Structural chemistry of carbohydrates especially of plant polysaccharides, biosynthesis of plant phenolic compounds, chemistry of heterocyclic compounds, enzyme kinetics, kinetics of gas-phase reactions and chemiluminescence, surface chemistry and dielectrics, physical properties of non-aqueous solutions, inorganic complexes.

607C. DEPARTMENT OF MATHEMATICS. (X-3)

A. P. Guinand, Professor.

Professional R & D Staff:

Scientists: 7.

Scientific and Product Fields of R & D.

Neutron transfer, magnetic hydrodynamics, analytic number theory, fluid dynamics, periodic functions and generalization, geometry of manifolds, geophysics, harmonic analysis, number theory, geometry of certain algebraic curves.

607D. DEPARTMENT OF PHYSICS. (X-3)

J. I. Lodge, Professor.

Professional R & D Staff:

Scientists: Physics 9.

Scientific and Product Fields of R & D.

Metallurgy, Surface Physics, Plasma Physics, Neutron Physics.

608. UNIVERSITY OF ALBERTA.

Edmonton 7, Alta.

Walter H. Johns, President.

UNIVERSITY RESEARCH LABORATORIES

(X-1, Y-1, X-2, Y-2, Z-2, X-3, Y-3)

A. G. McCalla Administrative Officer of Research.

Professional R & D Staff:

Scientists: Agriculture 58, Biology (botany, genetics, zoology) 38, Chemistry 31, Geology & other Earth Sciences 13, Mathematics 45, Medicine & Dentistry 169, Pharmacy 13, Physics 30, Computing Science 20.

Engineers: Chemical 11, Civil 21, Electrical 21, Mechanical 11, Metallurgical 6, Petroleum 2.

Scientific and Product Fields of R & D.

Chemistry, Physics, Biology (zoology, genetics, botany), Geology, Mathematics, Microbiology, Geography, Computing Science, Chem. Engineering, Civil Engineering, Elect. Engineering, Mech. Engineering, Metallurgical Engineering, Petroleum Engineering, Animal Science, Plant Science, Soil Science, Entomology, Food Science Agric. Engineering, Bacteriology, Biochemistry, Pharmacology, Physiology, Medicine, Surgery, Dentistry, Pharmacy.

609. UNIVERSITY OF BRITISH COLUMBIA.

Vancouver 8, B.C.

W. H. Gage, Acting President.

M. Shaw, Dean.

609A. FACULTY OF AGRICULTURAL SCIENCES. (X-3, Y-3, Z-3)

University of British Columbia.

M. Shaw, Dean.

Professional R & D Staff:

Scientists: Agriculture 31.

Scientific and Product Fields of R & D.

The scientific fields are Agricultural Economics, Agricultural Engineering and Mechanics, Animal Science, Food Science, Plant Science and Soil Science, (Animal science includes poultry science).

609B. DEPARTMENT OF ENGINEERING.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

R & D is carried out in the fields of engineering including Civil, Electrical, Mechanical, Chemical, Mineral and Metallurgy by a staff of some 90 scientists and engineers.

609C. MEDICAL AND RELATED FIELDS.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

Research and Development is carried out in the Medical, Dental and related fields by a staff of some 140 doctors.

609D. PHYSICAL, CHEMICAL AND BIOLOGICAL SCIENCES.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

R & D is performed in the Physical, Chemical, Biological and related sciences including Forestry, Fisheries and Oceanography by a staff of some 240 Scientists and Engineers.

609E. CANCER RESEARCH CENTRE.

R. L. Noble, Director.

Professional R & D Staff:

Scientists: Biology 4, Biochemistry 4.

Scientific and Product Fields of R & D.

Cancer Chemotherapy, Carcinogenesis and Endocrinology.

610A. UNIVERSITY OF CALGARY. (X-2, Y-2, Z-2)

Calgary 44, Alta.

W. R. Trost, Acting President.

Professional R & D Staff:

A staff of 189 in the following fields.

Scientific and Product Fields of R & D.

R & D is carried out in the fields of biology, chemistry, geology, geography, physics, chemical engineering, civil engineering, electrical & mechanical engineering and medicine.

610B. PETROLEUM RECOVERY INSTITUTE.

N. Mungan, Director.

Professional R & D Staff:

Scientists: 5.

Scientific and Product Fields of R & D.

R & D in the petroleum field.

610C. ENVIRONMENTAL SCIENCES CENTRE.

J. B. Cragg, Director.

Professional R & D Staff:

Scientists: 3.

Scientific and Product Fields of R & D.

Environmental sciences.

611. UNIVERSITY OF GUELPH.

Guelph, Ontario.

W. C. Winegard, President.

611A. WELLINGTON COLLEGE. (X-1, X-3)*Professional R & D Staff:*

Scientists: Chemistry 20, Stat. & Computer Sc. 20, Physics 17.

Scientific and Product Fields of R & D.

Chemistry; Organic, Biochemical, Physical & Inorganic Statistics; Theoretical & Applied Mathematics; Applied Physics; Molecular, Nuclear, Solid State, Biophysics.

611B. ONTARIO AGRICULTURAL COLLEGE. (X-1, Y-1, X-2, Y-2, Z-2, X-3, Y-3)

N. R. Richards.

Professional R & D Staff:

Scientists: Agriculture 151, Biology 68, Geology 6.

Engineers: Agricultural 21.

Scientific and Product Fields of R & D.

Biological Sc. — Agriculture, Horticulture, Biology General, Fisheries and Wildlife, Food Technology, Pollution; Agricultural Engineering, Landscape Architecture.

611C. ONTARIO VETERINARY COLLEGE.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

T. L. Jones, Dean.

Professional R & D Staff:

Scientists: Veterinary Medicine 38.

Scientific and Product Fields of R & D.

Veterinary Science.

611D. DEPARTMENT OF FOODS AND NUTRITION. (X-3, Y-3)

Mabel Sanderson.

Professional R & D Staff:

Scientists: Nutrition 4, Food Research 1.

Scientific and Product Fields of R & D.

Basic Foods & Nutrition, e.g. a) Some effects of low sodium intake on pregnant rats; b) Effects of decreased feeding frequency on growing rats; c) a study of egg white foams; heat penetration rate; amino acids in leakage, and quality measurement of meringues.

Applied Foods & Nutrition, a) a study of food habits of different age groups. — Comparison of mothers' evaluations with recorded dietary intakes of their preschool children, b) a study of methods in the assessment of the dietary intake of preschool children.

611E. McDONALD INSTITUTE. (Y-3)

H. R. Richards, Professor & Chairman of Department.

Professional R & D Staff:

Scientists: Textiles 4.

Engineers: Textile 1.

Scientific and Product Fields of R & D.

Textile Science.

612. UNIVERSITY OF LETHBRIDGE. (X-3)

Lethbridge, Alta.

W. A. S. Smith, President.

Professional R & D Staff:

Scientists: Biology 8, Chemistry 8, Physics 5.

Scientific and Product Fields of R & D.

Biological Sciences, Chemistry, Physics.

613. UNIVERSITY OF MANITOBA.

Winnipeg 19, Man.

H. H. Saunderson, President.

DEPARTMENT OF PLANT SCIENCE (X-2, Y-2, Z-2, X-3, Y-3, Z-3)

R. C. McGinnis, Professor and Head.

Professional R & D Staff:

Scientists: Agriculture 65, Biology 126, Chemistry 85, Geology & Other Earth Sciences 48, Mathematics 74, Medicine 118, Medicine & Dentistry 270, Pharmacy 19, Physics 76.

Engineers: Agricultural 6, Civil 22, Electrical 18, Mechanical 16, Metallurgical 3.

Scientific and Product Fields of R & D.

Agriculture, Biology, Chemistry, Geology and other earth sciences, Mathematics, Medicine, Dentistry, Pharmacy, Physics and Engineering (Agricultural, Civil, Electrical, Mechanical and Metallurgical).

614. UNIVERSITY OF MONCTON.

Moncton, N.B.

Adélaré Savoie, Rector.

Victor Ross, Dean.

614A. CHEMISTRY DEPARTMENT. (Y-2)

Brian T. Newbold, Department Head.

Professional R & D Staff:

Scientists: Chemical 6.

Scientific and Product Fields of R & D.

Organic Chemistry, Biochemistry.

614B. DEPARTMENT OF PHYSICS AND MATHEMATICS, (X-1, X-2)

Fernand E. Girouard, Department Head.

Professional R & D Staff:

Scientists: Physics 7.

Scientific and Product Fields of R & D.

Electron emission: Study of the thermionic and surface properties of recrystallized metals; Visual and photoelectrical properties of metals in an ultra-violet background; Destruction of positions in alkaliness under high pressure.

614C. BIOLOGY DEPARTMENT. (X-3)

Georges Citarella, in charge of the Department.

Professional R & D Staff:
Scientists: Biology 4.

Scientific and Product Fields of R & D.
Biological oceanography (Planktonology), Physio-ecology of slugs, Pelagic avifauna, Aerobic physiology of human endeavour.

614D. ENGINEERING DEPARTMENT. (X-3, Y-3)

Numa Marcotte, Department Head.

Professional R & D Staff:
Engineers: Chemical 1, Civil 4, Electrical 3, Mechanical 2.

Scientific and Product Fields of R & D.
Air-water heat exchange and Electrotechnology.

615. UNIVERSITY OF NEW BRUNSWICK.

Fredericton, N.B.

Colin B. Mackay, President.

L. W. Shemilt, Chairman of the Committee on Awards and Research in the Sciences.

615A. VARIOUS DEPARTMENTS. (X-2, Y-2, X-3, Y-3)

Professional R & D Staff:

Scientists: Biology 14, Chemistry 19, Geology and other Earth Scs. 12, Mathematics 16, Physics 11.
Engineers: Chemical 9, Civil 14, Electrical 18, Forestry 15, Mechanical 10, Survey Eng. 10.

Scientific and Product Fields of R & D.
Research and development is carried out in the fields of Biology, Chemistry, Geology, Mathematics, Physics, Forestry and Chemical, Civil, Electrical Mechanical and Surveying Engineering.

615B. BIO-ENGINEERING INSTITUTE. (X-3, Y-3, Z-3)

R. N. Scott, Executive Director.

Professional R & D Staff:

Engineers: O. T. 1, Electrical 3, Mechanical 1.

Scientific and Product Fields of R & D.

a) Assistive devices and systems for the physically handicapped;
b) Medical Electronic Instrumentation; c) Functional anatomy.

615C. COMPUTING CENTRE. (Y-1, Z-1, Z-2, X-3, Y-3, Z-3)

W. Dana Wasson, Director.

Professional R & D Staff:

Scientists: Mathematics 1, Other Computer Sc. 2, Electrical 5.

Scientific and Product Fields of R & D.

1) Hybrid computer development (Hardware and software)
2) Systems development
3) Pattern recognition.

615D. FIRE SERVICE CENTRE. (X-3, Y-3, Z-3)

Dr. A. J. Kayll, Acting-Director.

Professional R & D Staff:

Scientists: Chemistry 1.

Engineers: Chemical 2, Forestry 4.

Scientific and Product Fields of R & D.

Chemistry, Chemical Engineering, Forestry.
Character use and effects of fire in natural and artificial circumstances.

615E. MUSKEG RESEARCH INSTITUTE. (X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3)

Norman W. Radforth, Director.

Professional R & D Staff:

Scientists: Biology 2, Geology and Other Earth Sc. 2,
Engineers: Electrical 1.

Scientific and Product Fields of R & D.

The physical and chemical properties of organic terrain (muskeg).
Engineering classification of organic terrain. Design of off-road vehicles. Utilization of peat. Airphoto Interpretation of organic terrain for the basic and applied purpose. Biological interpretation of organic terrain. Hydrology of organic terrain. Productivity studies of peatland.

615F. NORTHEASTERN WILDLIFE STATION. (X-2, X-3)

Bruce S. Wright, Director.

Professional R & D Staff:

Scientists: Biology 7.

Scientific and Product Fields of R & D.

Wildlife research and management.

616. UNIVERSITY OF OTTAWA.

Ottawa 2, Ontario.

J. Jacques Lussier, Dean.

FACULTY OF MEDICINE (X-3, Y-3)

Cor. Nicholas & McDougall Sts.

Professional R & D Staff:

Various Fields 111.

Scientific and Product Fields of R & D.

Anatomy, Bacteriology, Biochemistry, Pharmacology, Pathology, Physiology, Histology, Medicine and Surgery.

617. UNIVERSITY OF SASKATCHEWAN REGINA CAMPUS.

Regina, Sask.

W. A. Riddell, Principal.

A. B. Van Cleave, Chairman, Div. of Natural Sciences.

617A. DEPT. OF GEOLOGICAL SCIENCES. (X-2, Y-2, X-3)

W. A. Gordon, Associate Prof. & Acting Head.

Professional R & D Staff:
Scientists: Geology 2.

Scientific and Product Fields of R & D.
Micropalaeontology of Mesozoic sediments. Structural geology and petrology of highly deformed rocks.

617B. BIOLOGY DEPARTMENT. (Z-1, Z-2, X-3, Y-3, Z-3)

R. Y. Zacharuk, Chairman.

Professional R & D Staff:
Scientists: Biology 14.

Scientific and Product Fields of R & D.
Environmental Biology — productivity of renewable resources. Microbiological degradations of pollutants, food containers, Chemoreception, Biological control, Animal control.

617C. CHEMISTRY DEPARTMENT. (X-2, Y-2, X-3, Y-3)

W. B. McConnell, Chairman.

Professional R & D Staff:
Scientists: Chemistry 17.

Scientific and Product Fields of R & D.
Basic research and a small amount of applied research in the broad areas of Analytical Chemistry, Biochemistry, Inorganic, Nuclear, Organic and Physical Chemistry.

617D. FACULTY OF ENGINEERING. (Y-1, Z-1, Y-2, Z-2)

J. B. Mantle, Dean.

Professional R & D Staff:
Engineers: Chemical 1, Civil 1, Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.
Research in areas of Chemical, Civil, Electrical and Mechanical Engineering.

617E. PHYSICS DEPARTMENT. (X-2, Y-2, X-3)

J. L. Wolfson, Chairman, Physics Department.

Professional R & D Staff:
Scientists: Geology 1, Physics 18.

Scientific and Product Fields of R & D.
X-ray Crystallography, Nuclear Physics, Solid State Physics, Theoretical Nuclear Physics, Theoretical Elementary Particle Physics, Theory of Relativity, Theoretical Solid State Physics, Experimental Geophysics.

618. UNIVERSITY OF SHERBROOKE.

Pavillon Central (central building) Sherbrooke, P.Q.

Louis-Paul Dugal, Vice-Rector (Research).

618A. FACULTY OF APPLIED SCIENCES (DEPT. OF MECHANICAL ENG.). (X-3, Y-3, Z-3)

Gilles Faucher, Director.

Professional R & D Staff:
Engineers: Mechanical 20.

Scientific and Product Fields of R & D.
The Mechanics of Solids, Mechanical Vibrations, Industrial Process.

618B. DEPARTMENT OF CIVIL ENGINEERING. (X-3, Y-3, Z-3)

Paul-Edouard Brunelle, Director.

Professional R & D Staff:
Scientists: Geology 2.
Engineers: Civil 14.

Scientific and Product Fields of R & D.
Structure — resistance of materials, theory of structures, reinforced concrete, steel frames; Hydraulics — fluid mechanics, hydraulic resources, sanitary engineering; Soil Mechanics — geotechnics, engineering geology; Transport — highway engineering, road traffic.

618C. DEPARTMENT OF ELECTRICAL ENGINEERING. (X-3, Y-3, Z-3)

Jules Delisle, Director.

Professional R & D Staff:
Engineers: Electronic 15.

Scientific and Product Fields of R & D.
Automatics, Telecommunications.

618D. BIOLOGY DEPARTMENT. (X-3, Y-3, Z-3)

Robert Saucier, Director.

Professional R & D Staff:
Scientists: Biology 14, Chemistry 2, Medicine and Dentistry 2, Vet. Medicine 1.

Scientific and Product Fields of R & D.
Microbiology, Plant physiology, Flora and phytogeographic studies, insect ecology, Animal physiology.

618E. CHEMISTRY DEPARTMENT. (X-3, Y-3, Z-3)

Gérard Pelletier, Director.

Professional R & D Staff:
Scientists: Chemical 13.

Scientific and Product Fields of R & D.
Analytic and inorganic chemistry, Organic chemistry, Physical chemistry.

618F. PHYSICS DEPARTMENT. (X-3, Y-3, Z-3)

Jean Lefavre, Director.

Professional R & D Staff:
Scientists: Physics 11.

Scientific and Product Fields of R & D.
Designing of instruments.

619. UNIVERSITY OF TORONTO.

Toronto 5, Ontario.

C. T. Bissell, President.

619A. INSTITUTE OF COMPUTER SCIENCE. (Y-3, Z-3)

Sandford Fleming Building.

C. C. Gotlieb, Director.

Professional R & D Staff:

Scientists: Mathematics 3, Computer Science 12.

Engineers: Electrical 1.

Scientific and Product Fields of R & D.

Computer Program Development, Teleprocessing by Computer, Computer Operating Systems, Computer Applications in Science, Information Management, Medicine.

619B. FACULTY OF MEDICINE. (X-3, Y-3, Z-3)

Medical Sciences Building.

A. L. Chute, M. D. Dean.

Professional R & D Staff:

Scientists: Medicine and Dentistry 150.

Scientific and Product Fields of R & D.

Various research projects of a biomedical nature.

619C. GRADUATE DEPT. OF PHARMACY. (X-3, Y-3)

F. N. Hughes, Chairman.

Professional R & D Staff:

Scientists: Pharmacy 17.

Scientific and Product Fields of R & D.

Medicinal and Pharmaceutical Chemistry, Pharmaceutics and Biopharmaceutics, Immunochemistry, Pharmacognosy including Natural Products Chemistry.

619D. SCHOOL OF HYGIENE. (X-3)

150 College Street, Toronto 5.

A. J. Rhodes, Director.

Professional R & D Staff:

Scientists: Biology 9; Mathematics 6, Medicine and Dentistry 47.

Scientific and Product Fields of R & D.

Microbiology, nutrition, parasitology, health administration, epidemiology and biometrics, environmental health and physiology.

619E. GREAT LAKES INSTITUTE. (X-1, Y-1, X-2, Y-2, X-3, Y-3)

A. D. Misener, Director.

Professional R & D Staff:

Scientists: Biology 2, Physics 2.

Engineers: Civil 1.

Scientific and Product Fields of R & D.

Pollution, thermal behaviour, currents, air-water interaction, shore erosion, marine biology, etc.

619F. INSTITUTE OF BIO-MEDICAL ELECTRONICS. (X-3, Y-3, Z-3)

N. F. Moody.

Professional R & D Staff:

Scientists: Medicine and Dentistry 2.

Engineers: Chemical 1, Electrical 4.

Scientific and Product Fields of R & D.

Biomedical Engineering.

620. UNIVERSITY OF WATERLOO.

Waterloo, Ontario.

D. A. Sprott, Dean of Mathematics.

P. J. Ponzio.

620A. FACULTY OF MATHEMATICS / DEPT. OF APPLIED MATHEMATICS. (X-3, Y-3)

Waterloo, Ontario.

P. J. Ponzio.

Professional R & D Staff:

Scientists: Mathematics 3, Physics 8.

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Quantum theory (quantum surface and crystal physics) differential equations and control theory general relativity.

620B. FACULTY OF MATHEMATICS / DEPARTMENT OF COMBINATORICS & OPTIMIZATION. (X-1, Y-1, X-2, X-3, Y-3)

Waterloo, Ontario.

G. Berman.

Professional R & D Staff:

Scientists: Mathematics 16.

Scientific and Product Fields of R & D.

Mathematics — Optimization; Combinatorics, Graphtheory.

620C. FACULTY OF MATHEMATICS / DEPARTMENT OF STATISTICS. (Y-2, Z-2, X-3, Y-3)

Waterloo, Ontario.

D. A. Sprott.

Professional R & D Staff:

Scientists: Chemistry 1, Mathematics 14.

Scientific and Product Fields of R & D.

Statistical Inference; Experimental Design; Applications to fatigue testing; Applications to experiments in Biology, Psychology, etc.; Mortality Statistics; Epidemiology; Free Radical Reactions with reference to Disease Processes. Collagen Chemistry with special reference to changes taking place during the aging processes.

620D. FACULTY OF ENGINEERING. (Y-1, Z-1, Y-2, Z-2)

Waterloo, Ontario.

A. N. Sherbourne, Dean of Engineering.

Professional R & D Staff:

Engineers: Chemical 25, Civil 29, Electrical 32, Mechanical 36, Other Mgt. Sciences 7, Systems Design 11.

Scientific and Product Fields of R & D.

(a) **Chemical Eng.** Metallurgy, Biochemical & polymer engineering, Kinetics, catalysis & Reactor Eng. Process control & systems dynamics, transport phenomena & thermodynamics; (b) **Civil Eng.:** solid mechanics and structures, transportation res.; environmental health Eng. water reserve planning and hydraulics, materials, Experimental mechanics and geochemical eng. (c) **Electrical Eng.** control systems, power systems, solid state electronics and electric circuits, computers and info processing, antennacrust microwaves, Biophysics. (d) **Mechanical Eng.** Manufacturing technology, limnology — Water Air pollution. Materials Science, Management services, Systems designs.

Professional R & D Staff:

Scientists: Biology 81.

Scientific and Product Fields of R & D.

1. Freshwater studies; 2. Microbiology; 3. Animal and Plant Physiology; 4. Genetics; 5. Electron Microscopy; 6. Palaeobotany; 7. Botanical taxonomy; 8. Cellular biology.

Professional R & D Staff:

Scientists: Chemistry 134.

Scientific and Product Fields of R & D.

Research is carried out in the usual areas of chemistry found in university departments. Substantial research is underway in Inorganic and Organic chemistry and slightly less in Analytical and Physical chemistry, and Bio-chemistry.

Professional R & D Staff:

Scientists: Mathematics 21, Physics 1.

Engineers: Electrical 6.

Scientific and Product Fields of R & D.

Research in software systems, creation of tools to aid software system development (compiler and operating system-writing languages) research in hardware system organization, basic research in automation and tuning machine theory, computer graphics, formal languages, etc.

Professional R & D Staff:

Scientists: Geology and other Earth Sciences 8.

Scientific and Product Fields of R & D.

Mapping description, and interpretation of glacial deposits; syenite petrology; conodont ecology and evolution in the Ordovician; Clay mineralogy of glacial deposits and bedrock formations; Deformation and alteration of sulphide minerals; Nature and origin of stream sediments.

Professional R & D Staff:

Scientists: Optometry 5.

Scientific and Product Fields of R & D.

1. Fundamental Research in Visual Processes and Ocular Functioning.
2. Environmental Visual Research — Applied Industrial Safety — Occupational Environments.
3. Clinical Visual Research: Epidemiology — Corrective Therapy, Application to Education.

Professional R & D Staff:

Scientists: Physics 99.

Scientific and Product Fields of R & D.

Solid state physics (Experimental and Theoretical). Atomic and Molecular Physics (Microwave Spectroscopy). Laser Physics. Astrophysics. Biophysics.

621. UNIVERSITY OF WESTERN ONTARIO.

(X-1, Y-1, Z-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

Richmond Street, London, Ont.

D. C. Williams, Pres. & Vice-Chancellor.

R. J. Rossiter, Vice-President (Academic) (and Provost).

Professional R & D Staff:

Faculty of 430 professors available for research in following fields.

Scientific and Product Fields of R & D.

Medicine, Engineering, Business Administration, Social Science, Science, Music, Arts, Law, Library and Information Science.

622. UNIVERSITY OF WINDSOR.

Windsor 14, Ontario.

J. F. Leddy, President.

F. A. DeMarco, Vice-President.

INDUSTRIAL RESEARCH INSTITUTE (Y-2, Z-2)

J. G. Parr, President.

Professional R & D Staff:

Scientists: Biology 10, Chemistry 16, Geology 7, Physics 11.

Engineers: Chemical 6, Civil 11, Electrical 7, Mechanical 6, Metallurgical 4.

Scientific and Product Fields of R & D.

Engineering and Applied Science fields.

623. UNIVERSITY OF WINNIPEG. (X-1, Y-1, X-2, Y-2, X-3, Y-3)

515 Portage Ave., Winnipeg 2, Man.

W. C. Lockhart, President.

Professional R & D Staff:

Scientists: Biology 3, Chemistry 2, Geology 2, Mathematics 4, Medicine and Dentistry 1, Physics 4.

Scientific and Product Fields of R & D.

Basic Research in Social Sciences, Physical Sciences and Humanities. Applied Research — Urban Studies, Psychology, Physics, Chemistry, Biology.

624. WATERLOO LUTHERAN UNIVERSITY. (Y-2, X-3)

Waterloo, Ont.

Frank C. Peters, President.

D. A. MacLulich, Assoc. Prof.

Professional R & D Staff:

Scientists: Biology 6, Chemistry 3, Geology 9, Physics 4.

Scientific and Product Fields of R & D.

Physiology; Ecology; Biochemical Genetics; Development Conservation; Physical Chemistry; Land Use Planning; Geomorphology; Laser Effects; Microwaves.

625. YORK UNIVERSITY.

4700 Keele Street, Downsview, Ont.

H. I. Schiff, Dean of Science.

UNIVERSITY RESEARCH (X-1)

Professional R & D Staff:

Scientists: Biology 33, Chemistry 32, Physics 3, Other 38.

Scientific and Product Fields of R & D.

Centre for Research in Experimental Space Science (CRESS). Laboratory studies of Physics and Chemistry of the upper atmosphere. Graduate Programmes in Chemistry, Biology and Physics. Centre for Atmospheric Pollution.

SCIENTIFIC RESEARCH AND DEVELOPMENT ESTABLISHMENTS IN CANADA
FEDERAL GOVERNMENT ORGANIZATIONS
SECTION 4A. (626 — 641)

90

626. AIR CANADA.
Place Ville-Marie, Montreal.
N. MacMillan, Acting-President.
A. M. Lee, Director of Operational Research.
OPERATIONAL RESEARCH DEPARTMENT (Y-1, Z-1)

Professional R & D Staff:
Scientists: Mathematics 2, Statistics/Econom. 3.
Engineers: Aeronautical 1, Electrical 1.

Scientific and Product Fields of R & D.
Operational research, decision theory, information systems in: econometric models, combinatorial problems, stochastic processes, network analysis, mathematical statistics, for: long-range planning, traffic forecasting, crew-scheduling, flight planning and control etc., management decisions.

627. ATOMIC ENERGY OF CANADA LIMITED.
150 Kent Street Ottawa, Ontario.
J. L. Gray.
W. B. Lewis.
627A. POWER PROJECTS DEVELOPMENT DIVISION. (Z-1, Z-2)
Sheridan Park, Ontario.
I. L. Wilson, Manager, Development Division.

Professional R & D Staff:
Scientists: Physics 3, Other 3.
Engineers: Aeronautical 2, Chemical 2, Civil 1, Electrical 3, Mechanical 16, Metallurgical 4, Other 13.

Scientific and Product Fields of R & D.
Nuclear Power Development.

627B. WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT. (X-1, Y-1, Z-1)
Pinawa, Man.
R. F. S. Robertson, Director, Research & Development Division.

Professional R & D Staff:
Scientists: Biology 3, Chemistry 25, Geology 2, Medicine & Dentistry 3, Physics 12, Other 8.
Engineers: Chemical 12, Civil 3, Electrical 17, Mechanical 35, Metallurgical 3, Mining 1, Other 5.

Scientific and Product Fields of R & D.
Nuclear Materials Science and Development, Nuclear Reactor Operation, Nuclear Reactor Assessment, Inline Instrumentation, Medical Biophysics, Environmental Research.

627C. CHALK RIVER NUCLEAR LABORATORIES. (X-1, Y-1, Z-1)
Chalk River, Ontario.
W. B. Lewis, Senior Vice-President, Science.

Professional R & D Staff:
Scientists: Biology 23, Chemistry 56, Mathematics 5, Medicine & Dentistry 3, Physics 95, Commerce 1.
Engineers: Aeronautical 2, Chemical 59, Civil 7, Electrical 48, Mechanical 85, Metallurgical 36, Engineering Physics 7.

Scientific and Product Fields of R & D.
Nuclear Science involving the disciplines of Biology, Chemistry, Engineering, Metallurgy and Physics.

627D. RESEARCH DIVISION. (X-1, Z-1, Y-2)
P.O. Box 93, Ottawa, Ontario.
A. B. Lillie, Director of Research.

Professional R & D Staff:
Scientists: Agriculture 1, Biology 2, Chemistry 7, Physics 30.
Engineers: Chemical 2, Civil 1, Electrical 2, Electronic 1, Mechanical 13, Metallurgical 1.

Scientific and Product Fields of R & D.
Industrial and medical equipment development, food irradiation, neutron applications, energy sources, medical applications, industrial meteorology and new materials.

628. BOARD OF GRAIN COMMISSIONERS FOR CANADA.
267 Grain Exchange Building.
F. F. Hamilton, Chief Commissioner.
G. N. Irvine, Chief Chemist.
GRAIN RESEARCH LABORATORY (X-3, Y-3, Z-3)
190 Grain Exchange Building, Winnipeg 2, Man.
G. N. Irvine, Director.

Professional R & D Staff:
Scientists: Chemistry 15.

Scientific and Product Fields of R & D.
Hard Red Spring Wheat: biochemical basis of quality; rheology and biochemistry relating to breadmaking; technology of milling flour.

Barley: biochemical basis of quality; biochemistry of malting and brewing; technology of barley malting and brewing. Durum wheat: biochemical basis of quality; rheology and biochemistry of pasta production; technology of macaroni processing; technology of milling seminola.

629. CANADIAN ARSENALS LIMITED. (Z-1, Z-2)
P.O. Box 717, Ottawa 4, Ontario.
J. R. Brisson, President and General Manager.
R. M. Ferguson, Technical Adviser.

Professional R & D Staff:
Scientists: Chemistry 1, Physics 1.
Engineers: Chemical 1, Electronic 1, Mechanical 1.

Scientific and Product Fields of R & D.
Product improvement category only, in such areas as initiatory explosives, pyrotechnic delays, electrically initiated explosive devices, proximity fuses, thermal stress of crystalline explosives and mechanisms for small arms.

630. CANADIAN NATIONAL RAILWAY.

P.O. Box 8100, Montreal 3, Que.

N. J. MacMillan, President.

M. Archer, Vice-President.

DEPARTMENT OF RESEARCH AND DEVELOPMENT (X-1, Y-1, Z-1)

R. P. Rennie, Chief of Technical Research.

Professional R & D Staff:

Scientists: Chemistry 12, Physics 2.

Engineers: Electronic 4, Mechanical 11, Metallurgical 4, Textile 1.

Scientific and Product Fields of R & D.

Rail transportation and materials handling equipment and electronic equipment for railway operations, materials for rail, road and water transportation equipment and plant.

631. DEPARTMENT OF AGRICULTURE (FEDERAL).Sir John Carling Bldg.,
Ottawa, Ontario.

S. B. Williams, Deputy Minister.

J. C. Woodward, Asst. Dep. Min. (Research).

631A. RESEARCH BRANCH, CAN. DEPT. AGR. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

K. W. Neatby Bldg.,

Central Experimental Farm,
Ottawa, Ontario.

Mr. B. B. Migicovsky, Director-General.

Professional R & D Staff:

Scientists: Agriculture 495, Biology 262, Chemistry 30, Mathematics 11.

Engineers: Civil 2, Electronic 1, Mechanical 10.

Scientific and Product Fields of R & D.

Biological sciences, soil science, chemistry, statistics, engineering and physics. All agricultural products including cereals, forages, meat, milk, vegetables, fruits and tobacco.

631B. ANIMAL PATHOLOGY DIVISION. (X-3, Y-3, Z-3)

100 Gamelin Blvd., Hull, Que.

J. F. Frank, Director, Animal Pathology Division.

Professional R & D Staff:

Scientists: Biology 3, Chemistry 3, Bacteriology 2, Veterinarians 46.

Scientific and Product Fields of R & D.

Diseases of Animals and Birds.

632. DEPARTMENT OF ENERGY MINES AND RESOURCES.

588 Booth St., Ottawa, Ontario.

632A. MINES BRANCH. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

Ottawa, Ontario.

John Convey, Director.

Professional R & D Staff:

Scientists: see below.

Engineers: see below.

Scientific and Product Fields of R & D.

Physical metallurgy, extraction metallurgy, mineral processing, mineral sciences, fuels research and mining research, carried out by some 250 scientists and engineers.

632B. MARINE SCIENCES BRANCH. (X-1, Y-1, X-3, Y-3)

Ottawa, Ontario.

W. M. Cameron, Director.

Professional R & D Staff:

Scientists: Geology & Other Earth Sciences 1, Mathematics 5, Physics 17.

Engineers: Civil 5, Electronic 2, Forestry 2, Mechanical 1, Mining 2.

Scientific and Product Fields of R & D.

Physical oceanography, marine geophysics, marine geology and research instruments and methods for oceanography and hydrography.

See also Atlantic Oceanography Lab. (632 F).

632C. OBSERVATORIES BRANCH. (X-1, Y-1, X-3, Y-3)

Ottawa, Ontario.

J. H. Hodgson, Director.

Professional R & D Staff:

Scientists: Geology 8, Mathematics 2, Physics 48, Other 10.

Engineers: Civil 2, Electrical 1, Forestry 1, Petroleum 1.

Scientific and Product Fields of R & D.

Seismology, astronomy, geomagnetism and gravity.

632D. INLAND WATERS BRANCH. (X-1, Y-1, X-3, Y-3)

Ottawa, Ontario.

A. T. Prince, Director.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 1, Chemistry 19, Geology & other Earth Sciences 19, Mathematics 2, Physics 6, Other 14.

Engineers: Civil 74, Electrical 3, Electronic 1, Forestry 2, Mechanical 1, Other 16.

Scientific and Product Fields of R & D.

Limnology-chemical and physical, hydrology, limnology, pollution, water quality and control, resource-development engineering, hydraulic engineering, properties of water and instrumentation for above.

632E. GEOLOGICAL SURVEY. (X-1, Y-1, X-3, Y-3)

Ottawa, Ontario.

Y. O. Fortier, Director.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 10, Geology & other Earth Sciences 140, Mathematics 1, Physics 14, Other 9.

Engineers: Electrical 2, Mining 1.

Scientific and Product Fields of R & D.

Crustal geology of Canada, Exploration geophysics, sedimentary and petroleum geology, geochemistry and mineralogy, quarternary research and geomorphology and economic geology.

632F. ATLANTIC OCEANOGRAPHIC LABORATORY. (X-1, Y-1, X-3, Y-3)
 Dartmouth, N.S.
 W. L. Ford, Director.

Professional R & D Staff:
 Scientists: Biology 2, Chemistry 4, Geology & other 12, Mathematics 6, Physics 30, Other 2.
 Engineers: Civil 1, Electrical 8, Electronic 1, Mechanical 2, Other 2.
Scientific and Product Fields of R & D.
 Physical Oceanography, Marine Geophysics, Marine Geology, Air-Sea Interaction, Chemical Oceanography, Instrumentation for Oceanography and Hydrography.

632G. CANADA CENTRE FOR INLAND WATERS. (X-1, Y-1, X-3, Y-3)
 Burlington, Ontario.
 J. P. Bruce, Acting Director.

Professional R & D Staff:
 Scientists: Biology 1, Chemistry 5, Geology & other 4, Physics 7.
 Engineers: Civil 2, Electrical 1, Electronic 1, Mechanical 2.
Scientific and Product Fields of R & D.
 Physical limnology, chemical limnology, limnology, pollution and water quality and engineering in support of above.

632H. DOMINION ASTROPHYSICAL OBSERVATORY. (X-1, Y-1, X-3, Y-3)
 Victoria, B.C.
 K. O. Wright, Director.

Professional R & D Staff:
 Scientists: Physics 5, Other 6.
Scientific and Product Fields of R & D.
 Stellar spectroscopy, measurement of galactic radial velocities, photometry of short period variables and spectroscopic binaries.

632I. DOMINION RADIO ASTROPHYSICAL OBSERVATORY. (X-1, Y-1, X-3, Y-3)
 Penticton, B.C.
 J. A. Galt, Officer-in-charge.

Professional R & D Staff:
 Scientists: Physics 4, Other 1.
Scientific and Product Fields of R & D.
 Studies of 21-CM H-Line, low frequency studies of quasars, cooperation with N.R.C. Observatory, Algonquin Park, in long base-line interferometer measurements.

632J. INSTITUTE OF SEDIMENTARY AND PETROLEUM GEOLOGY.
 (X-1, Y-1, X-3, Y-3)
 Calgary, Alberta.
 D. J. MacLaren, Director.

Professional R & D Staff:
 Scientists: Chemistry 1, Geology & other Earth Sciences 36.
Scientific and Product Fields of R & D.
 Sedimentary and petroleum geology.

633. DEPARTMENT OF NATIONAL DEFENCE.
 Canadian Forces Headquarters, Ottawa, Ontario.
 Lt. Gen. L. G. C. Lilley.
 Maj. Gen. D. A. G. Waldock.

633A. LAND ENGINEERING TEST ESTABLISHMENT. (Z-1, Z-2)
 c/o Canadian Forces HQ. Ottawa 4, Ontario.
 Lt. Col. J. Adams, CO. Land Engineering Test Estb/

Professional R & D Staff:
 Engineers: Electrical 11, Mechanical 3.
Scientific and Product Fields of R & D.
 1. Land forces equip. 2. Equip. in support of aerospace functions which is designated as Mobile Support equip., and 3) certain electrical and electronic equip. assoc. with Maritime Systems. Conduct technical studies of new ideas and concepts. Investigate failures and malfunctions of equipment in service. Conduct or assist in the conduct of demonstrations or displays of equipment, components or materials. Obtain equipment for evaluation, test or studies, including manufacture of components in LETE workshops. Control and account for equipments, components or materials during the course of development projects.

633B. NAVAL ENGINEERING TEST ESTABLISHMENT. (Z-1, Z-2)
 c/o 4 CFSO, 555 Dollard St., LaSalle, Que.
 Lt. Cdr. A. Morris, Resident Naval Overseer.

Professional R & D Staff:
 Engineers: Electronic 1, Mechanical 2.
Scientific and Product Fields of R & D.
 Naval Eng. Test. Estb. is primarily concerned with testing equip. proposed to be introduced into the Fleet and with analysis failures and developing improvements to equipment already fitted. New equip. is evaluated as to suitability for operation in the marine environment. The latter is often undertaken at the request of commercial firms.

633C. QUALITY ENGINEERING TEST ESTABLISHMENT. (Z-1, Z-2)
 Canadian Forces HQ, Ottawa 4, Ontario.
 C. H. Sager.

Professional R & D Staff:
 Scientists: Chemistry 14, Physics 2.
 Engineers: Chemical 2, Electrical 6, Mechanical 7, Metallurgical 1.
Scientific and Product Fields of R & D.
Major Scientific Fields include: Chemistry of material and processes; Electronics and electrical engineering; Metallic materials and mechanical engineering; Mechanical and electrical standards; Physics and environmental engineering.
Principal Activities Include: Test methods development for specifications and standards. Prototype evaluation in support of product improvements and development.

633D. AEROSPACE ENGINEERING TEST ESTABLISHMENT. (Z-1)

CFB Uplands, Ottawa, Ontario.

Col. J. W. Garland, Commander AETE.

Professional R & D Staff:

Scientists: Mathematics 7, Physics 10.

Engineers: Aeronautical 4, Civil 3, Electronic 20, Mechanical 22.

Scientific and Product Fields of R & D.

AETE functions as the Flight Test Authority for the Canadian Forces and the agent of CFHQ Des. Authority for the purpose of the testing & technically evaluating for specification & contract compliance: Aerospace vehicles, equipment & systems (including Flight Simulators) which are manufactured, modified or repaired by contractors and also for conducting the prototype installation, testing and evaluation of modifications to existing Aerospace vehicles, equip. & systems.

633E. AEROSPACE ENGINEERING TEST ESTABLISHMENT H.Q. (Z-1)

CFB Uplands, Ottawa, Ont.

Col. J. W. Garland, Commander.

Professional R & D Staff:

Scientists: Mathematics 4, Pharmacy 6.

Engineers: Aeronautical 2, Civil 3, Electronic 8, Mechanical 16.

Scientific and Product Fields of R & D.

AETE HQ Uplands performs a HQ function for AETE units. It also functions on behalf of Cmdr. AETE as the Flight Test Authority for the Cdn. Fcs. and as the agent of CFHQ Des. Authority for the purpose of testing and technically evaluating for specification and contract compliance: Aerospace vehicles equip. systems (Incl. simulators) which are manufactured, modified or repaired by contractors, and also for conducting the prototype installation, testing & evaluation of modification to existing Aerospace vehicles, equipments and systems.

633F. 448 TEST SQUADRON. (Z-1)

CFB Cold Lake, Alta.

Maj. D. Lemna, Sr. Proj. Off. Lt. Col. K. Fallis, CO.

Professional R & D Staff:

Scientists: Mathematics 2, Physics 3.

Engineers: Aeronautical 1, Electronic 9, Mechanical 4.

Scientific and Product Fields of R & D.

448 Test Sq. performs the technical test and evaluation of aircraft armament stores and weapons systems and operates the Primrose Lake Eval. Range. (a fully instrumented Air Weapons range) for this purpose. It conducts instrumented Air pacing for the calibration of aircraft pressure sensitive flight instruments. It also provides test equipment calibration services for DND and other government agencies.

633G. EXPERIMENTAL SQUADRON 10. (VX-10)

Shearwater, Nova Scotia.

Cmdr. K. Meikle, C.O.

Lt. Cdr. N. Haslett, Sr. Test Engineer.

Professional R & D Staff:

Scientists: Mathematics 1, Physics 1.

Engineers: Aeronautical 1, Electronic 3, Mechanical 2.

Scientific and Product Fields of R & D.

VX10 performs the technical test and evaluation phases of Maritime ASW vehicle, equipment and systems programs for naval fixed and rotary wing aircraft including ship aircraft matched systems such as Helicopter/Destroyer Haul Down and landing systems.

633H. DEFENCE RESEARCH BOARD.

c/o National Defence HQ, 125 Elgin St., Ottawa 4, Ont.

R. J. Uffen, Chairman.

633H-1. DEFENCE RESEARCH BOARD. (Y-1)

R. J. Uffen, Chairman.

Professional R & D Staff:

91 scientists and engineers.

Scientific and Product Fields of R & D.

The formulation of policy and objectives of the short term and long range research program of the Board, and the overall allocation and management of the Board's personnel and financial resources.

633H-2. DEFENCE RESEARCH TELECOMMUNICATIONS ESTABLISHMENT. (X-1, Y-1, Z-1)

F. T. Davies, Director-General.

Professional R & D Staff:

112 scientists and engineers.

Scientific and Product Fields of R & D.

In the field of electronics, applied research and instrumentation are combined with fundamental investigations into solid-state physics, and with studies of electronic circuits and circuit elements. The communication program is concerned primarily with applied research in radio wave propagation, communications and radar systems and signal detection, Radio physics studies deal mainly with the physical processes in the upper atmosphere that affect radio propagation.

633H-3. DEFENCE RESEARCH ANALYSIS ESTABLISHMENT. (Y-1)

G. R. Lindsey, Director-General.

Professional R & D Staff:

63 scientists and engineers.

Scientific and Product Fields of R & D.

The Defence Research Analysis Establishment is responsible for providing operational research and defence analysis resources to the Department of National Defence.

633H-4. DEFENCE RESEARCH ESTABLISHMENT ATLANTIC. (X-1, Y-1, Z-1)

Dartmouth, N.S.

J. G. Retallack, Director-General.

Professional R & D Staff:
55 scientists and engineers.*Scientific and Product Fields of R & D.*

Research related to maritime warfare and particularly with problems of anti-submarine defence, including underwater acoustics, signal processing and transducer research and hydrodynamics.

633H-5. DEFENCE RESEARCH ESTABLISHMENT PACIFIC. (X-1, Y-1, Z-1)

Esquimalt, B.C.

R. Chinnick, Director-General.

Professional R & D Staff:
32 scientists and engineers.*Scientific and Product Fields of R & D.*

Research leading to improved methods for the detection of submerged submarines, with the effort distributed among three main fields of physical research — underwater acoustics, low-frequency electromagnetics and fluid dynamics.

633H-6. DEFENCE RESEARCH ESTABLISHMENT SUFFIELD. (X-1, Y-1, Z-1)

Ralston, Alberta.

B. J. Perry, Director-General.

Professional R & D Staff:
37 scientists and engineers.*Scientific and Product Fields of R & D.*

To conduct research on problems concerned with defence against biological, chemical and nuclear warfare.

633H-7. DEFENCE RESEARCH ESTABLISHMENT TORONTO. (X-1, Y-1, Z-1)

Downsview, Ontario.

H. M. Barrett, Director-General.

Professional R & D Staff:
29 scientists and engineers.*Scientific and Product Fields of R & D.*

To measure and understand the capabilities and limitations of human beings, and to promote recognition of these variables in the design of military equipment and the formulation of training and operational procedures.

633H-8. CANADIAN ARMAMENT RESEARCH AND DEVELOPMENT ESTAB.

(X-1, Y-1, Z-1)

Quebec, P.Q.

E. J. Boby, Director-General.

Professional R & D Staff:
122 scientists and engineers.*Scientific and Product Fields of R & D.*

Research in the fields of armament, visibility and detection, fire control, propellants and explosives, aerospace research and weapons systems analysis.

633H-9. DEFENCE CHEMICAL, BIOLOGICAL & RADIATION ESTABLISHMENT.

(X-1, Y-1, Z-1)

J. T. Flynn, Director-General.

Professional R & D Staff:
49 scientists and engineers.*Scientific and Product Fields of R & D.*

Research into the defensive aspects of biological, chemical and nuclear warfare, and investigation of power sources, including batteries, fuel cells, thermionic and thermoelectric devices.

633I. CANADIAN FORCES INSTITUTE OF AVIATION MEDICINE. (X-1, Y-1, Z-1)

1107 Avenue Road, Toronto 12, Ont.

Colonel J. H. Murray, Commanding Officer.

*Professional R & D Staff:*Scientists: Biology 9, Mathematics 2, Medicine & Dentistry 13, Physics 1, Psychologist 2, Pilot 1, Diving Officer 2.
Engineers: Aeronautical 3.*Scientific and Product Fields of R & D.*Military Biosciences (Physiology, Biochemistry, Psychology), Personal, protective, emergency and survival equipment . . .
Military medical standards.**634. DEPARTMENT OF NATIONAL HEALTH & WELFARE.**

Brooke Claxton Bldg., Tunney's Pasture, Ottawa, Ont.

J. N. Crawford, Deputy Minister (Health).

634A. LABORATORY OF HYGIENE. (Y-1, Z-1)

E. T. Bynoe, Director.

Professional R & D Staff:

Scientists: Biology 21, Chemistry 10, Medicine & Dentistry 7, Vet. Med. 3.

Scientific and Product Fields of R & D.

Biological drugs such as bacterial and viral vaccines, toxoids, antisera and the antibiotics, better assay and control procedures as well as of better products. Improved methodologies for the laboratory diagnosis of a variety of communicable diseases (bacterial, viral, rickettsial.) The control of zoonoses, laboratory methods for the early detection of chronic disease and clinical chemistry.

634B. OCCUPATIONAL HEALTH DIVISION. (Z-1, Y-3)

Environmental Health Centre, Tunney's Pasture, Ottawa.

T. H. Patterson, Chief.

*Professional R & D Staff:*Scientists: Biology 1, Chemistry 16, Mathematics 1, Medicine & Dentistry 6, Physics 1.
Engineers: Chemical 2, Mechanical 1, Environmental Engineering 3.*Scientific and Product Fields of R & D.*

Industrial and Environmental Medicine, Industrial toxicology and Environmental sciences involving analytical chemistry, physics and engineering.

634C. PUBLIC HEALTH ENGINEERING DIVISION. (X-3, Y-3)
Environmental Health Centre, Tunney's Pasture, Ottawa.
W. R. Edmonds, Chief.

Professional R & D Staff:
Scientists: Chemistry 2, Bacteriology 1.
Engineers: Civil 5.
Scientific and Product Fields of R & D.
Waste treatment.

634D. RADIATION PROTECTION DIVISION. (Y-1, Z-1, X-3, Y-3, Z-3)
Brookfield Road, Ottawa, Ontario.
A. H. Booth, Acting Chief.

Professional R & D Staff:
Scientists: Biology 3, Chemistry 4, Mathematics 1, Medicine & Dentistry 1, Physics 3.
Scientific and Product Fields of R & D.
Radiation protection.

634E. HEALTH INSURANCE AND RESOURCES BRANCH. (X-1, Y-1)
Brooke Claxton Bldg., Tunney's Pasture, Ottawa, Ont.
E. H. Lossing, Director General.

Professional R & D Staff:
Scientists: Medicine & Nursing 11, Architecture 3, O. R. 4.
Engineers: Electrical 1, Mechanical 1.
Scientific and Product Fields of R & D.
Conducting public health research (excluding medical research) in Canada. Grants-in-aid are also given for the extension and improvement of health services in Canada.

634F. FOOD AND DRUG RESEARCH LABORATORIES. (Y-1)
Tunney's Pasture, Ottawa 3, Ont.
A. B. Morrison, Director.
R. A. Chapman, Director-General.

Professional R & D Staff:
Scientists: Biology 40, Chemistry 52, Medicine & Dentistry 1, Veterinarian 3.
Scientific and Product Fields of R & D.
Pharmacology, Toxicology, Pathology, Analytical Chemistry, Biochemistry, Nutrition, Microbiology, Biopharmaceutics and Organic Chemistry.

635. DEPARTMENT OF PUBLIC WORKS.
Sir Charles Tupper Bldg., Riverside Dr., Ottawa 8.
L. Lalonde, Deputy Minister.

635A. D. P. W. TESTING LABORATORIES. (Z-1, Z-2, Z-3)
Riverside Drive, Ottawa 8, Ont.
N. E. Laycraft, Chief, Testing Laboratories.

Professional R & D Staff:
Scientists: Chemistry 6, Physics 1.
Engineers: Chemical 2, Civil 11.
Scientific and Product Fields of R & D.
Civil Engineering — Testing, investigation and development of structural materials and components such as steel, concrete, asphalts, masonry, hardware & fittings. Soils mechanics, foundation design & geotechnical engineering. Chemistry — Testing investigation and development of materials such as protective coatings, thermal insulating materials, stationery supplies, lubricants, soaps, waxes and caulking compounds.

636. DEPARTMENT OF TRANSPORT.
Hunter Building, Ottawa, Ont.
J. R. Baldwin, Deputy Minister.

636A. TRANSPORTATION POLICY & RESEARCH BRANCH. (Y-1, Z-1)
E. L. Hewson, Director, Transportation Policy and Research Branch.

Professional R & D Staff:
Scientists: Geology 2, Physics 1, Economics 16.
Engineers: Civil 1.

Scientific and Product Fields of R & D.
Air, railway, water, highway and urban transportation policy and research fields.

636B. CONSTRUCTION BRANCH.
Century Bldg., 360 Lisgar St., Ottawa, Ont.
E. Daoust, Director.
G. Y. Sebestyan, Chief Engineer Design Division.

636B-1. APPLIED RESEARCH AND DEVELOPMENT SECTION. (Y-1, Z-1)
G. H. Argue, Head.

Professional R & D Staff:
Engineers: Civil 3.
Scientific and Product Fields of R & D.
Pavement Design, Materials and Construction.

636B-2. ELECTRICAL ENGINEERING DIVISION (Z-1, Z-3)
Century Bldg., 360 Lisgar St., Ottawa, Ont.
J. P. Wilson, Chief Electrical Engineer.

Professional R & D Staff:
Engineers: Electrical 10.
Scientific and Product Fields of R & D.
Equipment and systems for airport lighting and electrical power for aviation Navigational Systems.

636C. TELECOMMUNICATIONS & ELECTRONICS BRANCH.
No. 3 Temporary Bldg., Ottawa, Ont.
H. J. Williamson, Director.
F. L. Bentley, Chief.

636C-1. APPLIED RESEARCH & DEVELOPMENT DIVISION. (Y-1, Z-1)

F. L. Bentley, Chief.

Professional R & D Staff:

Engineers: Electronic 22.

Scientific and Product Fields of R & D.

Navigational Aids for air and marine, Radar and radar data transmission and display systems, Communications for air, marine and meteorological purposes, Data Processing systems and Electronic systems for meteorological purposes.

636D. METEOROLOGICAL BRANCH.

315 Bloor Street West, Toronto 5, Ont.

J. R. H. Noble.

C. C. Boughner, Chief, Climatology Division.

636D-1. CLIMATOLOGICAL RESEARCH AND SPECIAL INVESTIGATIONS.

(Y-1, Z-1, Y-3, Z-3)

36 Adelaide St. E., Toronto.

G. A. McKay, Superintendent of Climatological Research.

Professional R & D Staff:

Scientists: Geology 1, Meteorology 9, Geographer 1.

Scientific and Product Fields of R & D.

Arctic Climatology, Bioclimatology, Climatology for Renewable Resources, Engineering Climatology, Agricultural Climatology and Urban-Environmental Climatology.

636D-2. CLOUD PHYSICS UNIT, ATMOSPHERIC RESEARCH SECTION.

(X-1, Y-1, Z-1, X-3, Y-3, Z-3)

8 Spadina Rd., Toronto, Ontario.

J. D. Holland, Meteorologist.

Professional R & D Staff:

Scientists: Meteorology 5.

Scientific and Product Fields of R & D.

Cloud Physics, Weather Modification, Radar Meteorology and Atmospheric Electricity.

636D-3. DYNAMIC RESEARCH UNIT. (X-1, Y-1, X-3, Y-3)

344 Bloor Street West, Toronto, Ont.

J. Clodman, Supervisor, Dynamic Research.

Professional R & D Staff:

Scientists: Geology 1, Mathematics 2, Physics 2, Meteorology 2.

Scientific and Product Fields of R & D.

Analytical studies on atmospheric motions and circulations using dynamic-numerical techniques. Studies on improved physical-mathematical atmospheric models and associated procedures to develop more effective Numerical Weather Prediction methods. Programs for observing upper-atmospheric phenomena, analysing data and theoretical studies to improve knowledge on circulations processes of the upper atmosphere.

636D-4. HYDROMETEOROLOGY SECTION. (X-1, Y-1, Z-1, Y-3, Z-3)

Mackenzie Bldg., 36 Adelaide Street, East, Toronto.

T. L. Richards, Meteorologist, Supt. of Hydrometeorology.

Professional R & D Staff:

Scientists: Geology 2, Other 7.

Scientific and Product Fields of R & D.

Hydrometeorology.

636D-5. INSTRUMENT ENGINEERING & RESEARCH. (Y-1, Z-1)

1 Front Street W., Toronto, Ontario.

R. E. Vockeroth, Superintendent.

Professional R & D Staff:

Scientists: Meteorology, 11.

Engineers: Electronic 4, Mechanical 2.

Scientific and Product Fields of R & D.

Meteorological Instruments.

636D-6. MICROMETEOROLOGY RESEARCH UNIT. (X-1, Y-1, X-3, Y-3)

8 Spadina Road, Toronto 4, Ontario.

R. E. Munn, Supervisor Micrometeorological Unit.

Professional R & D Staff:

Scientists: Physics 1, Meteorology 4.

Scientific and Product Fields of R & D.

Air Pollution, Turbulence, Energy Balance.

636D-7. OPERATIONAL DEVELOPMENT AND EVALUATION UNIT. (Y-1, Z-1)

Dept. of Transport, Box 158, Montreal AMF.

M. Kwizak, Unit Head.

Professional R & D Staff:

Scientists: Mathematics 2, Meteorology 9.

Scientific and Product Fields of R & D.

Numerical weather prediction, objective analysis of meteorological data, numerical methods of integration of partial differential equations representing atmosphere.

636D-8. RADIATION & OZONE GROUP; PHYSICAL RESEARCH UNIT.

(X-1, Y-1, Z-1, X-3, Y-3, Z-3)

8 Spadina Rd., Toronto, Ont.

W. L. Godson, Superintendent of Atmospheric Research.

Professional R & D Staff:

Scientists: Physics 1, Meteorology 2.

Scientific and Product Fields of R & D.

The calibration of radiation and ozone instruments, the study of the basic properties and development of radiation and ozone measuring instruments, operation of a National Atmospheric Radiation Centre, theoretical and applied radiation studies, radiation and ozone sounding research and development evaluation & quality control of Canadian ozone data.

636D-9. SCIENTIFIC DEVELOPMENT AND EVALUATION UNIT.

(Y-1, Z-1, Y-3, Z-3)

Roy Lee, Supervisor, Scientific Development & Evaluation Unit.

Professional R & D Staff:

Scientists: Meteorology 4.

Scientific and Product Fields of R & D.

Scientific field: Meteorology.

Product Group: Development of operational weather forecasting techniques.

636E. SYNOPTIC RESEARCH UNIT. (X-1, Y-1, Z-1, X-3, Y-3)

344 Bloor Street West, Toronto, Ontario.

J. Clodman, Supervisor, Synoptic Research.

Professional R & D Staff:

Scientists: Physics 1, Meteorology 5.

Scientific and Product Fields of R & D.

Development of improved forecasting techniques using physical-statistical procedures. Studies of the atmospheric meso-scale (1-100 miles). Research in aeronautical meteorology including studies on atmospheric motions which influence aircraft in flight. Uses of weather satellite data including satellite photography of cloud and the earth's surface.

637. FISHERIES RESEARCH BOARD OF CANADA.

Sir Charles Tupper Building, Riverside Dr., Ottawa 8, Ont.

F. R. Hayes, Chairman.

637A. ARCTIC BIOLOGICAL STATION. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

P.O. Box 400, Ste. Anne de Bellevue, Que.

C. J. Kerswill, Director.

Professional R & D Staff:

Scientists: Biology 10.

Scientific and Product Fields of R & D.

Study of marine mammals and fish populations in the Arctic.

637B. BIOLOGICAL STATION. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

P.O. Box 100, Nanaimo, British Columbia.

K. R. Allen.

Professional R & D Staff:

Scientists: Biology 42, Mathematics 1, Physics 4.

Engineers: Electrical 1, Electronic 1.

Scientific and Product Fields of R & D.

Biological research on commercial ocean fisheries of the area.

637C. BIOLOGICAL STATION. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

St. Andrews, New Brunswick.

J. M. Anderson.

Professional R & D Staff:

Scientists: Biology 26, Mathematics 1, Physics 1.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Biological research on commercial ocean fisheries of the area.

637D. BIOLOGICAL STATION. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

St. John's, Newfoundland.

W. Templeman, Director.

Professional R & D Staff:

Scientists: Biology 14.

Scientific and Product Fields of R & D.

Biological research on commercial ocean fisheries of the area.

637E. FRESHWATER INSTITUTE. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

501 University Crescent, Winnipeg, Man.

W. E. Johnson.

Professional R & D Staff:

Scientists: Biology 20, Physics 1.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Fisheries products of the freshwater areas in Canada and the freshwater environment including work on eutrophication and product development.

637F. MARINE ECOLOGY LABORATORY. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

Bedford Institute, P.O. Box 1006, Dartmouth, N.S.

L. M. Dickie, Director.

Professional R & D Staff:

Scientists: Biology 14, Physics 3.

Scientific and Product Fields of R & D.

Study of ecological and environmental conditions and productivity of the marine area.

637G. HALIFAX LABORATORY. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

P. O. Box 429, Halifax, Nova Scotia.

D. R. Idler, Director.

Professional R & D Staff:

Scientists: Biology 36, Chemistry 4.

Engineers: Food 4, Mechanical 1.

Scientific and Product Fields of R & D.

Industrial marine products and marine product handling. Study of chemistry and biochemistry of natural marine products.

637H. VANCOUVER LABORATORY. (X-1, Y-1, Z-1, X-3, Y-3, Z-3)

6640 N. W. Marine Drive, Vancouver, B.C.

H. L. A. Tarr, Director.

Professional R & D Staff:

Scientists: Biology 24, Chemistry 3.

Engineers: Mechanical 2.

Scientific and Product Fields of R & D.

Industrial marine products and marine product handling. Study of chemistry and biochemistry of natural marine products.

638. INDIAN AFFAIRS & NORTHERN DEVELOPMENT.

400 Laurier Avenue West, Ottawa 4, Ont.

R. F. Battle, Assistant Deputy Minister.

638A. POLICY, PLANNING, PROGRAMMING. (X-1, Y-1, Z-1)

C. I. Fairholm, Director, Policy, Planning, Programming.

Professional R & D Staff:

Scientists: Sociology 3.

Scientific and Product Fields of R & D.

Economics, Agricultural Sciences, Anthropology and sociology.

638B. CANADIAN WILDLIFE SERVICE. (X-1, Y-1, Z-1, Y-2, X-3, Y-3)

John S. Tener, Acting Director.

Professional R & D Staff:

Scientists: Biology 92, Mathematics 1.

Scientific and Product Fields of R & D.

Econogy, Ornithology, Mammalogy, Wildlife Pathology, Pesticides, Limnology, Wildlife Interpretation, Biometrics.

638C. NATIONAL HISTORIC SITES SERVICE, RESEARCH DIVISION. (Y-3)

J. H. Rick, Chief, Research Division.

Professional R & D Staff:

Scientists: Mathematics 1, Physics 6, Other 14.

Scientific and Product Fields of R & D.

Archaeological research, Historical research (involving use of scientific method, e.g. compilation of architectural inventory).

638D. NORTHERN SCIENCE RESEARCH GROUP. (Y-1, Y-3)

A. J. Kerr, Chief, Northern Science Research Group.

Professional R & D Staff:

Scientists: Natural & Social Sciences 10.

Scientific and Product Fields of R & D.

Applied research in the social sciences except economics, minor research activity in problems of northern technology.

639. NATIONAL RESEARCH COUNCIL OF CANADA.

Ottawa 7, Canada.

W. G. Schneider, President.

D. W. R. McKinley, Executive Director (Laboratories).

639A. DIVISION OF APPLIED CHEMISTRY. (X-1, Y-1, Y-2, Y-3)

National Research Council of Canada.

I. E. Puddington, Director.

Professional R & D Staff:

Scientists: Chemistry 65, Geology 2, Physics 11.

Engineers: Chemical 6, Metallurgical 1.

Scientific and Product Fields of R & D.

The field of applied chemistry.

639B. DIVISION OF APPLIED PHYSICS. (X-1, Y-1, Y-2, Y-3)

A. E. Douglas, Director.

Professional R & D Staff:

Scientists: Chemistry 5, Physics 55, Other 1.

Engineers: Civil 2, Electrical 8, Mechanical 2, Other 5.

Scientific and Product Fields of R & D.

The field of applied physics.

639C. DIVISION OF BIOCHEMISTRY & MOLECULAR BIOLOGY. (X-1, Y-1)

G. H. Dixon, Director.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 4, Chemistry 32, Medicine & Dentistry 2, Physics 1.

Scientific and Product Fields of R & D.

The field of Biochemistry & molecular biology.

639D. DIVISION OF BIOLOGY. (X-1, Y-1, Y-2, Y-3)

G. C. Butler, Director.

Professional R & D Staff:

Scientists: Agriculture 10, Biology 32, Chemistry 9, Mathematics 2.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

The field of biology.

639E. DIVISION OF BUILDING RESEARCH. (X-1, Y-1, Y-2, Y-3)

R. F. Legget, Director.

Professional R & D Staff:

Scientists: Agriculture 1, Chemistry 11, Geology 2, Physics 9, Other 6.

Engineers: Chemical 6, Civil 28, Electrical 1, Mechanical 16, Metallurgical 1, Other 3.

Scientific and Product Fields of R & D.

The field of building research.

639F. DIVISION OF MECHANICAL ENGINEERING. (X-1, Y-1, Y-2, Y-3)

D. C. MacPhail, Director.

Professional R & D Staff:

Scientists: Chemistry 5, Mathematics 6, Physics 3, Other 7.

Engineers: Aeronautical 6, Chemical 2, Civil 5, Electrical 11, Mechanical 26, Other 3.

Scientific and Product Fields of R & D.

The field of mechanical engineering.

639G. DIVISION OF PURE CHEMISTRY. (X-1, Y-1)

J. A. Morrison, Director.

Professional R & D Staff:

Scientists: Chemistry 49, Pharmacy 1, Physics 4.

Engineers: Chemical 1.

Scientific and Product Fields of R & D.

In the field of pure chemistry.

639H. DIVISION OF PURE PHYSICS. (X-1, Y-1)

G. Herzberg, Director.

Professional R & D Staff:

Scientists: Chemistry 7, Geology 2, Mathematics 1, Physics 44.

Engineers: Electrical 1, Mechanical 1, Eng. Phys. 1.

Scientific and Product Fields of R & D.

In the field of pure physics.

639I. NATIONAL AERONAUTICAL ESTABLISHMENT. (X-1, Y-1, Y-2, Y-3)

F. R. Thurston, Director.

Professional R & D Staff:

Scientists: Chemistry 3, Geology 2, Mathematics 5, Physics 6.
Engineers: Aeronautical 27, Civil 1, Electrical 9, Mechanical 14,
Metallurgical 1, Eng. Phys. 2.

Scientific and Product Fields of R & D.
In the field of aeronautics.

639J. RADIO AND ELECTRICAL ENGINEERING DIVISION. (X-1, Y-1, Y-2, Y-3)*Professional R & D Staff:*

Scientists: Chemistry 1, Mathematics 4, Medicine & Dentistry 1,
Physics 34, Other 4.
Engineers: Electrical 51, Mechanical 3, Other 4.

Scientific and Product Fields of R & D.
In the field of electrical engineering.

639K. SPACE RESEARCH FACILITIES BRANCH. (X-1)

R. S. Rettie, Chief.

Professional R & D Staff:

Scientists: Chemistry 3, Mathematics 1, Physics 2.
Engineers: Aeronautical 1, Electrical 1, Electronic 3, General 3.

Scientific and Product Fields of R & D.
Branch provides support services for basic researches employing space technology, particularly sounding rockets. Services are provided to government and university scientists free of specific charges and to similar American scientists under an intergovernmental agreement. Branch carries out basic research on a small scale into auroral phenomena.

639L. PRAIRIE REGIONAL LABORATORY. (X-1, Y-1, Y-2, Y-3)

N.R.C. Saskatoon, Saskatchewan.

H. R. Sallans, Director.

Professional R & D Staff:

Scientists: Agriculture 7, Biology 13, Chemistry 13, Pharmacy 1.
Engineers: Chemical 1.

Scientific and Product Fields of R & D.
In the fields of biology and chemistry and agriculture.

639M. ATLANTIC REGIONAL LABORATORY. (X-1, Y-1, Y-2, Y-3)

N.R.C. of Canada, 1411 Oxford St., Halifax, N.S.

A. C. Neish, Director.

Professional R & D Staff:

Scientists: Agriculture 3, Biology 8, Chemistry 21, Geology 2.
Engineers: Electrical 1.

Scientific and Product Fields of R & D.
In the field of Biology and Chemistry.

640. POLYMER CORPORATION LIMITED.

Sarnia, Ontario.

Mr. E. R. Rowzee, President.

E. J. Buckler.

**RESEARCH AND DEVELOPMENT DIVISION
(X-1, Y-1, Z-1, Y-2, Z-2)**

Sarnia, Ontario.

L. A. McLeod, Manager, Research & Development Div.

Professional R & D Staff:

Scientists: Chemistry 77, Physics 7, Rubber Technologists 4.
Engineers: Chemical 55, Mechanical 2.

Scientific and Product Fields of R & D.

Polymerization: in emulsion, stereo solution systems and cationic systems.

Physical evaluation: by computing & vulcanization, solution methods and instrumental analysis.

Latex preparation and use, Resin preparation and use, (ABS, polystyrene). Chemical synthesis.

641. POST OFFICE DEPARTMENT.

Sir Alexander Campbell Bldg., Ottawa 8, Ont.

W. H. Wilson.

C. F. Hobbs, Dir. of Statistical Programmes.

MATHEMATICS & STATISTICS DIVISION (Y-1, Z-1)

G. T. McDonald, Superintendent of Math. & Statistics Division.

Professional R & D Staff:

Scientists: Mathematics 3, Stats & Economics 6.
Engineers: Aeronautical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Forecasting methods, short, long-term, seasonal; Sampling Techniques, stratified, multistage, systematic & random cluster for means, totals proportions & ratios. Mathematical & Digital Simulation — on computers for Postal processing and distribution systems, ascertainment of cost & revenue — Methods of allocating cost & revenue by category of mail by functional area i.e., transportation, processing, administration — Mathematical Programming and O/R.

642. DEPARTMENT OF LANDS AND FORESTS, PROVINCE OF ALBERTA.
 Natural Resources Building, Edmonton, Alberta.

V. A. Wood, Deputy Minister.

642A. FISH AND WILDLIFE DIVISION. (X-1, Y-1, Z-1)

Stuart B. Smith, Director.

Professional R & D Staff:

Scientists: Biology 25.

Scientific and Product Fields of R & D.

Fishery Biology — Ecological Research and Development of Fishing Technology; Fishery Economics Wildlife Biology — Ecological Research; Wildlife Economics.

Professional R & D Staff:

Scientists: Agriculture 4.

Scientific and Product Fields of R & D.

Pasture development on prairie, irrigated land (marginal) and wooded areas of Alberta (grazing reserve program and range management (Carrying capacity studies and range management extension — (Range Survey).

642B. GRAZING SECTION, PUBLIC LANDS DIVISION. (Y-1, Z-2, Y-3)

430 Natural Resources Building, Edmonton, Alta.

L. M. Forbes, Grazing Co-ordinator.

642C. EQUIPMENT DEVELOPMENT SECTION. (Y-1, Z-1)

10625-120 Ave., Edmonton, Alberta.

Professional R & D Staff:

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Specialized forestry equipment not available commercially and limited testing of new equipment — fibreglass product production.

642D. FIRE CONTROL RESEARCH SECTION. (Y-1, Z-1)

304 Natural Resources Building, Edmonton, Alta.

R. S. Miyagawa, Fire Control Research Supervisor.

Professional R & D Staff:

Engineers: Forestry 1.

Scientific and Product Fields of R & D.

Economic evaluation of forest production. Computer recording and statistical analysis to improve fire control methods and organization. Fuel and fire behaviour studies.

643. RESEARCH COUNCIL OF ALBERTA.

(X-1, Y-1, X-2, Y-2, Z-2, X-3, Y-3, Z-3)

87th Ave. & 114th Street, Edmonton, Alberta.

E. J. Wiggins, Director of Research.

Professional R & D Staff:

Scientists: Agriculture 7, Biology 1, Chemistry 32, Geology 22, Mathematics 3, Meteorology 2.

Engineers: Aeronautical 1, Chemical 9, Civil 4, Mechanical 4, Metallurgical 1, Mining 1, Industrial 1.

Scientific and Product Fields of R & D.

Natural resources, geological studies and beneficiation methods. Product and process development, petro-chemical, non-metallic mineral, agricultural chemicals plastics, forest products. Transportation, pipeline, highways. Hydrology. Atmospheric physics, hail, and air pollution. Soil science; extractive and physical metallurgy; biochemistry.

644. BRITISH COLUMBIA HYDRO AND POWER AUTHORITY, PROVINCE OF BRITISH COLUMBIA.

970 Burrard Street, Vancouver 1, B.C.

G. M. Shrum, Co-Chairman, Dr. H. L. Keenleyside, Co-Chairman.

J. H. Steede, Executive Director & Chief Engineer.

TECHNICAL RESEARCH SECTION (Z-1)

570 Dunsmuir Street, Vancouver 2, B.C.

R. M. Shier, Technical Research Engineer.

Professional R & D Staff:

Engineers: Electrical 6.

Scientific and Product Fields of R & D.

New electric utility equipment and methods, new means of testing electric utility equipment and new methods of determining electric utility system and equipment parameters.

645. B.C. RESEARCH COUNCIL.

Vancouver 8, B.C.

P. C. Trussell, Director.

J. E. Breeze (Associate Director).

645A. BIOLOGY. (X-1, Z-1, X-2, Y-2, Z-2)

C. C. Walden, Division Head.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 7, Food Science 3.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Water pollution, Sanitary Engineering and Fermentations, Fish Biology, Mineral Microbiology, Marine Borers and Petroleum Microbiology.

Professional R & D Staff:

Scientists: Chemistry 2, Physics 1.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

Pulping, pulp bleaching and pulp mill air pollution control.

645B. CHEMISTRY. (X-1, Z-1, X-2, Y-2, Z-2)

D. W. Read, Acting Division Head.

645C. ENGINEERING. (Y-1, Z-1, X-2, Y-2, Z-2)

J. E. Breeze, Division Head.

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Electrical 1, Electronic 2, Mechanical 2, Metallurgical 1.

Scientific and Product Fields of R & D.

Colour measurement as applied to Agricultural and Fisheries products grading problems. Digital instrumentation as applied to torsion measurement and speed control. Mechanical engineering design as applied to marine drives, saw mill machinery, geophysics problems and forest products processing problems.

645D. PHYSICS. (Z-1, X-2, Y-2, Z-2)

W. N. English, Division Head.

Professional R & D Staff:

Scientists: Physics 2.

Engineers: Electrical 2, Electronic 1, Mechanical 2.

Scientific and Product Fields of R & D.

Electro-optics, Mechanical Controls, Ultrasonics and Building Materials.

645E. R-GROUP. (X-1, X-2, Y-2, Z-2)

R. H. Wright, Group Head.

Professional R & D Staff:

Scientists: Biology 3, Chemistry 1.

Engineers: Electrical 2.

Scientific and Product Fields of R & D.

Olfactory Response.

645F. TECHNICAL SERVICES. (Y-1, Y-2)

D. S. Smith, Division Head.

Professional R & D Staff:

Scientists: Mathematics 3, Operations Research 4.

Scientific and Product Fields of R & D.

Operations Research.

646. DEPT. OF MINES & NATURAL RESOURCES, PROVINCE OF MANITOBA.

Legislative Building, Winnipeg, Man.

W. W. Mair, Deputy Minister.

L. Brooks, Assistant Deputy Minister.

646A. FISHERIES BRANCH. (Y-1, Z-1, Y-3, Z-3)

810 Norquay Building, Winnipeg, Man.

Dr. K. H. Doan, Director of Fisheries.

Professional R & D Staff:

Scientists: Biology 9, Arts 1.

Scientific and Product Fields of R & D.

Commercial Fishing Adm., Sport Fishing, Biological Investigation, Hatchery Operation and Fish Planting.

646B. LAND-USE CO-ORD. AND LAND PLANNING. (Y-1, Z-1)

810 Norquay Bldg., Winnipeg, Man.

M. C. McKay, Director of Lands.

Professional R & D Staff:

Scientists: Agriculture 9, Geography 2, Science 1, Arts 3.

Engineers: Forestry 2.

Scientific and Product Fields of R & D.

Land Inventory, Land Use, Crown Land Sales & Leases and Soil Surveys.

646C. MANITOBA FOREST SERVICE. (Y-1, Z-1, Y-3, Z-3)

808 Norquay Building, Winnipeg, Man.

W. K. Webster, Director.

Professional R & D Staff:

Engineers: Forestry 10.

Scientific and Product Fields of R & D.

Forest, Inventory, Management, Silviculture, Protection and Re-forestation.

646D. MINES & DEPARTMENTAL SERVICES. (X-1, Y-1, Z-1, Z-2, X-3, Y-3, Z-3)

901 Norquay Building, Winnipeg, Man.

J. Roper, Director.

Professional R & D Staff:

Scientists: Geology 15.

Engineers: Mining 3, Petroleum 2.

Scientific and Product Fields of R & D.

Geological Investigations, Mines ventilation and safety and oil reservoir Engineering.

646E. PROJECT DEVELOPMENT & ECONOMICS BRANCH.

(X-1, Y-1, Z-1, Z-2, X-3, Y-3, Z-3)

Halter Bldg., Winnipeg, Man.

J. E. Nykoluk, Director.

Professional R & D Staff:

Scientists: Geographic 2.

Engineers: Mechanical 1.

Scientific and Product Fields of R & D.

Research into the evaluation of non-economic consequences of resource programs and into the economic development possibilities of resources which are presently partially utilized, e.g. kaolin, peat moss, wild rice, minerals.

646F. WILDLIFE BRANCH. (Y-1, Z-1, Y-3, Z-3)

810 Norquay Building, Winnipeg, Man.

K. H. Doan, Acting Director of Wildlife.

Professional R & D Staff:

Scientists: Biology 7, Medicine & Dentistry 1.

Scientific and Product Fields of R & D.

Biological Investigation, Wildlife Habitat Surveys, Big Game Hunting, Upland Game Hunting and Fur Production (Trapping).

647. RESEARCH AND PRODUCTIVITY COUNCIL, PROVINCE OF NEW BRUNSWICK. (X-2, Y-2, Z-2)

P.O. Box 1236, Fredericton, N.B.

C. Bursill, Executive Director.

Professional R & D Staff:

Scientists: Biology 2, Chemistry 8, Geology 6, Mathematics 1.

Engineers: Electronic 1, Food 3, Mechanical 8.

Scientific and Product Fields of R & D.

Chemistry and Food Science, mineralogy and material science, engineering, vibratory mechanisms, evaluation of standards of fluid power machinery, electronic instrumentation and on-line computer control systems, management engineering, operations research and systems applications.

648. DEPARTMENT OF LANDS AND FORESTS, PROVINCE OF NOVA SCOTIA.

Provincial Building, Halifax, N.S.

G. W. I. Creighton, Deputy Minister.

648A. EXTENSION DIVISION. (Y-1, Z-1, Y-3, Z-3)

L. S. Hawboldt, Director of Extension.

Professional R & D Staff:

Scientists: Biology 1.

Engineers: Forestry 6.

Scientific and Product Fields of R & D.

Forestry, Woodlot Resources Management.

648B. FORESTRY DIVISION (SILVICULTURE). (Y-1, Z-1, Y-3, Z-3)

G. R. Maybee, Director of Forestry.

Professional R & D Staff:

Scientists: 3.

Scientific and Product Fields of R & D.

Forestry, Productivity of the Forest Resource.

648C. WILDLIFE CONSERVATION DIVISION. (Y-1, Z-1)

Kentville, N.S.

Merrill Prime, Director of Wildlife Conservation.

Professional R & D Staff:

Scientists: Biology 6.

Scientific and Product Fields of R & D.

Management and research — moose, deer, bear, pheasant, grouse, etc., furbearers, waterfowl and fisheries.

649. DEPT. OF MINES, N.S.

P.O. Box 1087, Halifax, N.S.

J. P. Newlan, Deputy Minister.

J. P. Wright, Director, Geological Division.

GEOLOGICAL DIVISION (X-1, Y-1, Z-1, X-3, Z-3)

F. S. Shea, Senior Economic Geologist.

Professional R & D Staff:

Scientists: Chemistry 2, Geology 11.

Engineers: Electrical 1, Mining 2.

Scientific and Product Fields of R & D.

Geological, geochemical and geophysical studies of potential mineral-bearing areas and of specific mineral commodities, ground water resources and availability.

650. NOVA SCOTIA RESEARCH FOUNDATION.

P.O. Box 1027, Halifax, N.S.

J. E. Blanchard, President.

W. A. Bridgeo, Director of Chemistry Division.

650A. CHEMISTRY DIVISION. (X-2, Y-2, Z-2)

W. A. Bridgeo, Director.

Professional R & D Staff:

Scientists: Chemistry 11.

Engineers: Chemical 2.

Scientific and Product Fields of R & D.

1. Analytical chemistry laboratory.
2. Inorganic chemistry studies re. existing commercial processes and new processes.
3. Water pollution — fine particle studies.
4. Air pollution — fine particle studies.

650B. GEOPHYSICS & GEOLOGY DIVISION. (X-1, Y-1, Y-2)

D. E. T. Bidgood, Director.

Professional R & D Staff:

Scientists: Geology 2, Physics 1, Eng. Physics 1.

Scientific and Product Fields of R & D.

Geophysics: Gravity Surveys, Continuous Seismic Profiling, Magnetic Surveys and Bore Hole Logging.
Geology: Survey of Individual Mineral Deposits Windsor Stratigraphy and Structure.

650C. OPERATIONAL RESEARCH DIVISION. (Y-1, Z-1, Y-2, Z-2)

T. Nickerson, Director.

Professional R & D Staff:

Engineers: Electrical 1, Mechanical 1.

Scientific and Product Fields of R & D.

Operational research applications in Industry and Government.

650D. SEaweEDS DIVISION. (Y-1, Z-1, Y-2, Z-2, Y-3, Z-3)

Miss C. MacFarlane, Director.

Professional R & D Staff:

Scientists: Biology 1.

Scientific and Product Fields of R & D.

Harvesting and utilization of seaweeds, particularly Irish moss and kelp and the application of seaweed extracts.

650E. TECHNICAL SERVICES DIVISION. (Z-1, Z-2, Z-3)

William D. Shields, P.Eng., Director.

Professional R & D Staff:

Engineers: Mechanical 1, Mining 1, Industrial 1.

Scientific and Product Fields of R & D.

Industrial Engineering, Information Science, New Product Development, non-destructive Testing and corrosion engineering.

651. DEPARTMENT OF AGRICULTURE AND FOOD, PROVINCE OF ONTARIO.

Parliament Buildings, Toronto 5, Ontario.

Everett Biggs, Deputy Minister.

D. N. Huntley, Director Agricultural Education and Research Division.

651A. FARM ECONOMICS, COOPERATIVES AND STATISTICS BRANCH. (Y-1, Y-3)

H. L. Patterson, Director.

Professional R & D Staff:

Scientists: Agriculture 26.

Scientific and Product Fields of R & D.

Applied economic research and feasibility studies related to the production and marketing of agricultural products.

651B. HORTICULTURAL RESEARCH INSTITUTE OF ONTARIO. (Y-1, Y-3)

Vineland Station, Ontario.

J. A. Archibald, Director.

Professional R & D Staff:

Scientists: Agriculture 22.

Scientific and Product Fields of R & D.

Breeding and development of new kinds and varieties of fruits, vegetables and ornamental plants. Development of new products from fruits and vegetables.

651C. KEMPTVILLE COLLEGE OF AGRICULTURAL TECHNOLOGY. (Y-1, Y-3)

Kemptville, Ontario.

Dr. F. A. Stinson, Principal.

Professional R & D Staff:

Scientists: Agriculture 19.

Scientific and Product Fields of R & D.

Applied research and development on the production and protection of domestic plants and animals.

651D. NEW LISKEARD COLLEGE OF AGRICULTURAL TECHNOLOGY. (Y-1, Y-3)

New Liskeard, Ont.

J. D. Butler, Principal.

Professional R & D Staff:

Scientists: Agriculture 2.

Scientific and Product Fields of R & D.

Applied research and development on the production and protection of domestic plants and animals.

651E. RIDGETOWN COLLEGE OF AGRICULTURAL TECHNOLOGY. (Y-1, Y-3)

Ridgetown, Ontario.

W. W. Snow, Principal.

Professional R & D Staff:

Scientists: Agriculture 18.

Scientific and Product Fields of R & D.

Applied research and development on the production and protection of domestic plants and animals.

652. DEPARTMENT OF LANDS & FORESTS.

Maple, Ontario.

W. R. Henson, Chief, Research Branch.

652A. CENTRAL RESEARCH UNIT. (X-1, Y-1)

Sault Ste. Marie, Ontario.

A. G. Gordon, Unit Leader.

Professional R & D Staff:

Scientists: Forestry 1.

Scientific and Product Fields of R & D.

Forestry—studies of ecology of spruce forests—growth and nutrition of spruce on complete range of forest sites, racial variation of spruce genus in relation to growth and relative efficiency in nutrient uptake.

652B. FISHERIES RESEARCH STATION. (X-1, Y-1)

Sault Ste. Marie, Ontario.

C. A. Lewis, Station Supervisor.

Professional R & D Staff:

Scientists: Biology 4.

Scientific and Product Fields of R & D.

Fisheries Research—studies in fluctuations of age, classes of whitefish and on splake plantings in Lake Huron.

652C. FISHERIES RESEARCH STATION (LAKE SUPERIOR). (X-1, Y-1)

Sault Ste. Marie, Ontario.

C. A. Lewis, Station Supervisor.

Professional R & D Staff:

Scientists: Biology 4.

Scientific and Product Fields of R & D.

Study of success of hatchery plantings of lake trout; success of native trout in recovering former levels in the face of residual lamprey populations, general studies of whitefish, walleyes and deep water coregonoids.

652D. FISHERIES RESEARCH STATION. (X-1, Y-1)

Wheatley, Ontario.

A. Derksen, Station Supervisor.

Professional R & D Staff:

Scientists: Biology 2.

Scientific and Product Fields of R & D.

Studies on reproduction, distribution and food of smelt and yellow perch in Lake Erie.

652E. FISHERIES RESEARCH STATION. (X-1, Y-1)

Kenora, Ontario.

W. J. Christie, Station Supervisor.

Professional R & D Staff:

Scientists: Biology 2.

Scientific and Product Fields of R & D.

Studies of walleye, whitefish, american eels, perch. Experimental planting of lake trout, Kokanee.

652F. MIDWESTERN RESEARCH UNIT. (X-1, Y-1)

Port Arthur, Ontario.

N. F. Lyon, Unit Leader.

Professional R & D Staff:

Scientists: Forestry 2.

Scientific and Product Fields of R & D.

All silvicultural research in Northern Ontario spruce-fir; jackpine, poplar.

652G. SOUTH CENTRAL RESEARCH UNIT. (Y-1, Z-1)

Dorset, Ontario.

M. M. McLean, Unit Leader.

Professional R & D Staff:

Scientists: Forestry 1.

Scientific and Product Fields of R & D.

Manipulation of tolerant hardwoods to develop more productive forest management techniques.

652H. SOUTHEASTERN RESEARCH UNIT. (X-1, Y-1)

Tweed, Ontario.

G. A. Sinclair, Unit Leader.

Professional R & D Staff:

Scientists: Forestry 2.

Scientific and Product Fields of R & D.

Forestry, silvics of Southern Ontario tree species; effects of prescribed burning.

652I. SOUTHERN RESEARCH STATION. (X-1, Y-1, Z-1)

Maple, Ontario.

W. R. Henson, Chief, Research Branch.

Professional R & D Staff:

Scientists: Biology 21, Chemistry 1, Mathematics 1, Forestry 16.

Scientific and Product Fields of R & D.

Study of silvicultural characteristics of native tree species, the effects of various influences upon reproduction, growth and yield, the productive capacity of land, the economics of forestry practices and the improvement of tree species. Fisheries: Study of populations of animal species. Wildlife: Study of carrying capacity of habitat, the effects of harvesting, the life history, ecology and population size.

653. ONTARIO RESEARCH FOUNDATION. (X-1, Y-1, X-2, Y-2, Z-2)

Sheridan Park, Ontario.

W. R. Stadelman, President.

W. M. Campbell, Director of Research.

Professional R & D Staff:

Scientists: Agriculture 1, Biology 6, Chemistry 36, Physics 8.

Engineers: Chemical 14, Electrical 1, Mechanical 13, Metallurgical 8, Mining 3, Mathematics 2.

Scientific and Product Fields of R & D.

The synthesis of new organic compounds; the study of wood and paper properties; the search for new uses for wastes from the paper mills; air pollution, chemical process development; corrosion; the studies of inorganic building materials; glasses and ceramics; waste water treatments and sewage treatment processes; textile fibres, new semi-conductor materials, mechanical engineering development; ore dressing services; metal physics related to fatigue; high power ultrasonics on processing; extractive and powder metallurgy research.

654. THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

620 University Avenue, Toronto 2, Ontario.

George E. Gathercole, Chairman.

J. M. Hambley, General Manager.

ONTARIO HYDRO W. P. DOBSON RESEARCH LABORATORY
(Y-1, Z-1)

200 Kipling Avenue South.

Toronto 18, Ontario.

J. H. Waghorne, Director of Research.

Professional R & D Staff:

Scientists: Biology 1, Chemistry 7, Geology 1, Mathematics 5, Physics 1.

Engineers: Chemical 11, Civil 7, Electrical 37, Electronic 7, Mechanical 19, Metallurgical 2.

Scientific and Product Fields of R & D.

Electric Power Systems — behaviour and control, Generation — Transmission — Distribution — Utilization — Civil & Mechanical-Plant required for Generation, Transmission, etc. Chemical — Operating problems with present plant — Consideration of new materials and applications.

655. DEPARTMENT OF AGRICULTURE, PROVINCE OF QUEBEC. (Y-1)

Parliament Buildings, Quebec.

B. Forest.

R. Lesperance, Agronomist.

Professional R & D Staff:

Scientists: Agriculture 54.

Scientific and Product Fields of R & D.

Rational use of soils, the protection and improvement of plants, the health, feeding and improvement of animals and on agricultural technology.

656. DEPARTMENT OF LANDS AND FORESTS (QUEBEC).

Parliament Buildings Quebec.

F. Boutin, Deputy Minister.

P. Dorion, Assistant to the Research Director.

RESEARCH DIVISION (Y-1, Z-1)

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 1.

Engineers: Forestry 16.

Scientific and Product Fields of R & D.

Forest ecology, silviculture, soil fertility, reforestation, use of the timber, dendrometry.

657. HYDRO-QUEBEC.

75 Dorchester Street West, Montreal, Quebec.

Robert A. Boyd.

Lionel Boulet, Director.

HYDRO-QUEBEC RESEARCH INSTITUTE (Y-1, Z-1, Y-2, Y-3, Z-3)

*Professional R & D Staff:**Scientific and Product Fields of R & D.*

High voltage, high output, conversion and conveyance (direct and alternating) of electric power, materials, electric arcs, fuel cells.

Automation of electricity supply systems.

658. DEPARTMENT OF NATURAL RESOURCES, PROVINCE OF SASKATCHEWAN.

Prince Albert, Saskatchewan.

G. E. Couldwell, Director of Fisheries.

F. M. Atton, Chief Biologist.

SASKATCHEWAN FISHERIES LABORATORY (X-1, Y-1)

122 S.R.C. Building, University Campus, Saskatoon, Sask.

Professional R & D Staff:

Scientists: Chemistry 6.

Scientific and Product Fields of R & D.

Fish ecology, limnology, pollution assessment and fish culture in lakes.

659. DEPT. OF NATURAL RESOURCES, WILDLIFE BRANCH (SASK.).

Govt. Administration Building, Regina, Saskatchewan.

C. B. Forbes, Director of Wildlife.

WILDLIFE RESEARCH DIVISION (X-1, Y-1, X-3, Y-3)

311 - 21st St. East, Saskatoon.

Professional R & D Staff:

Scientists: Biology 7.

Scientific and Product Fields of R & D.

Wildlife research, mainly on big game and game birds. Largely of an ecological nature.

660. DEPARTMENT OF MINERAL RESOURCES (SASK.).

Regina, Saskatchewan.

James T. Cawley, Deputy Minister.

David R. Francis, Director of Geological Sciences.

GEOLOGICAL SCIENCES BRANCH (Y-1, Z-1, Y-3, Z-3)

Professional R & D Staff:

Scientists: Geology & other Earth Sciences 32.

Scientific and Product Fields of R & D.

Economic geology of Saskatchewan as applied to petroleum and natural gas, metallic minerals and industrial minerals.

661. SASKATCHEWAN MINERALS.

P.O. Box 120, Chaplin, Saskatchewan.

J. C. Mills, General Manager.

P. G. Rueffel, Manager, Research & Development.

SASKATCHEWAN MINERALS (Y-1, Z-1)

Professional R & D Staff:

Scientists: Biology 1.

Scientific and Product Fields of R & D.

New production methods, improvement of product, diversification into other products related with our product and improving methods of garnering raw material.

662. SASKATCHEWAN RESEARCH COUNCIL. (Y-1, Y-2, Z-2, Y-3, Z-3)

University Campus, Saskatoon.

T. E. Warren, Director.

Professional R & D Staff:

Scientists: Agriculture 4, Chemistry 7, Geology 7, Physics 6.

Engineers: Chemical 7, Civil 2, Electrical 3, Mechanical 2.

Scientific and Product Fields of R & D.

Main fields of application are water, minerals, agriculture, technical assistance to industry and transportation.

ALBERTA

Alberta Dairymen's Association	581
Alberta Sulphur Research Ltd.	582
ATCO Industries Limited	28
Becker Drilling (ALBERTA) Limited	43
British American Oil Co.	62B
Canadian Industries Limited	99C
Canadian Sugar Factories Ltd.	110
Central Alberta Dairy Pool	121
Chemical & Geological Laboratories Limited	129
Con-Force Pacific Ltd.	147
Corod Manufacturing Ltd.	154
Cyclone Engineering Sales Ltd.	163
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Hudson's Bay Oil and Gas Company Limited	277
Husky Oil Ltd.	282
Imperial Oil Limited	284A & B
Imperial Oil Enterprises Ltd.	285B
Medicine Hat Brick & Tile Co. Limited	362
Northwest Industries Limited	401
Northwest Nitro-Chemicals Limited	402
Peace River Mining and Smelting Limited	420
Province of Alberta —	
Dept. Lands & Forests	642, 642B to D incl
R & L Molecular Research Limited	451
Raylo Chemicals Limited	455
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Riley's Datashare International Limited	469
Sherritt-Gordon Mines Limited	500
Syncrude Canada Limited	530
Triad Oil Company Limited	545
University of Alberta	608
University of Calgary	610A to C incl
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Western Co-operative Fertilizers Ltd.	572
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Yellowknife Bear Mines Limited	578
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Anaconda American Brass Limited	18
Bapco Paint Limited	37
B. C. Research Council	645, 645B to F incl
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Bethlehem Copper Corporation Ltd.	48
Bingham Pump Company, Limited	49
The British American Chemical Company Limited ..	61
British Columbia Packers Limited	63
Brunette Machine Works Limited	65
The Canadian Fishing Company Limited	94
Canadian Forest Products Ltd.	95A to D incl
Carbitron Development Ltd.	116
Cascade Electronics Ltd.	119
Chemech Engineering Limited	127
Chemech Pollution Abatement Systems Ltd.	128
Clayburn-Harbison Ltd.	136
Columbia Cellulose Company Limited	140
Cominco Ltd.	144A
Computer Sciences Canada Limited	145
Council of the Forest Industries of British Columbia	155
Crown Electronics	158
Crown Zellerbach Canada Limited	159
Cryogenic Enterprises Ltd.	161
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General Paint Corp. of Canada Ltd.	248
Glidden Co. Ltd.	256B
Glulman Products Ltd.	258
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Hooker Chemicals Limited	273
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Monsanto CANADA Ltd.	379D
Nelson Brothers Fisheries Limited	388
Northwood Pulp Limited	403
Pacific Logging Company Limited	414
Pacific Plastics (CANADA) Limited	415
Pacific Resins Limited	416
Placer Development Limited	431
Plywood Manufacturers of B.C. Div. Forest Ind.	588
Province of British Columbia —	
B.C. Hydro & Power Authority	644
Pyramid Machine Works Limited	445
Rader Pneumatics & Engineering Co. Ltd.	448
Rayonier (B.C.) Limited	458
Reichhold Chemicals (Canada) Ltd.	462D
Research Industries Limited	465
Wm. Robinson Ltd.	475
V. W. Ruskin & Associates Engineering Limited ...	479
Scott Plastics Limited	489
Simon Fraser University	605
Spilsbury & Tindall Limited	517
Sun-Rype Products Limited	528
University of British Columbia	609A to E incl
Warnock Hersey International Limited —	
Coast Eldridge Prof. Serv. Div.	568

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A. E. I. Telecommunications (CANADA) Limited	5
Allied Farm Equipment, Winnipeg Mfg. Div.	15
Anthes Western Limited	24
Atomic Energy of Canada	627B
Bio-Science Laboratory	50
Board of Grain Commissioners for Canada	628
Brewers Association of Canada	583
Bristol Aerospace Limited	59
Campbell Soup Co.	73B
Conuclear Limited	153

Province of Manitoba —

Dept. Mines & Nat. Res.	646, 646B to F incl
ESB Canada Limited	218C
Fisheries Research Board of Canada	637E
Hudson Bay Mining & Smelting Company Limited ..	276
International Cooperatives Ltd.	293
International Nickel Co. of Canada Ltd.	295D
Interprovincial Co-operatives Limited	297
The Manitoba Sugar Company Limited	346
Monarch Machinery Limited	378
Motor Coach Industries Limited	382
Northern Paint Co. Limited	398
Pioneer Electric Manitoba Limited	428
Ray-O-Vac Division ESB Canada Ltd.	459
Structural Glass Limited	527
Templeton Engineering Company	535
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Province of New Brunswick —	
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Abrex Specialty Coatings Limited	4
Aerofall Mills Limited	6
Aerovox Canada Limited	7
Aerosol Packaging	8
The Algoma Steel Corporation Limited	13
Allanson Manufacturing Corp. Limited	14
Alma Paint & Varnish Company Limited	16
Andrew Antenna Company Limited	19
Angelstone Limited	20
Animal Breeding Consultants Limited	22
Anthes Eastern Limited,	
Including John Woods Co. Ltd.	23
Astra Pharmaceuticals (CANADA) Limited	27
Atlas Steels Company	30
Atomic Energy of Canada Limited	627A, C, D
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Bach-Simpson Limited	36
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The Brantford Cordage Company	57
T. G. Bright & Co. Limited	58
The British American Oil Company Limited	62
The British Drug Houses (CANADA) Limited	64
Brock University	593, 593B, to D incl
Brunswick of Canada Limited	66
Burndy Canada Ltd.	69
Campbell Manufacturing Co. Ltd.	72
Campbell Soup Company Ltd.	73
Canada Bread Company Limited	74
Canada Brick Company	75
Canada Cement Company Limited	76
Canada Dry Limited	78
Canada Glazed Papers Limited	79
Canada Malting Co. Limited	80
Canada Packers Limited	81
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Canadian Breweries Ltd.	85
Canadian Cannery Limited	89
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Chemical Projects Ltd.	131
Chipman Chemicals Limited	132
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Connecticut Chemicals Ltd.	148
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Desitron Company Ltd.	175
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Dominion Aluminum Fabricating Ltd.	183
Dominion Colour Corp. Ltd.	185
Dominion Foundries and Steel Limited	187
Dominion Magnesium Limited	188
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The Dominion Road Machinery Co. Ltd.	190
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Dover Corporation (CANADA) Limited	193
Dow Chemical of Canada Limited	194A
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Dunlop Canada Ltd.	196A to C incl
Duplate Canada Limited	197
Du Pont of Canada Limited	198A to D incl
Dye & Chemical Co. of Canada Ltd.	200
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Electric Reduction Company of Canada Limited ...	207
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Fairgrieve & Son Limited	221
Falconbridge Nickel Mines Limited	22A & B
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Federal Wire and Cable Division, H. K. Porter (CANADA) Ltd.	225
Ferranti-Packard Electric Limited	226A & B
Ferro Enamels (CANADA) Limited	227
Fiberglas Canada Limited	228
Field Aviation Company Limited	229
Fischer Bearings Manufacturing Limited	230
Fisheries Research Board of Canada	637
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Fleet Manufacturing Limited	232
Fluid Power Limited	234
Foseco Canada Limited	237
Found Brothers Aviation Ltd.	238
Free-Piston Development Co. Ltd.	241
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Garrett Manufacturing Limited	244
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General Foods Limited	246A
General Motors of Canada Limited	247
General Steel Wares Limited	250A to C incl
General Time of Canada Limited	251
Geo-Met Limited	254
Geonics Limited	252
Geophysical Engineering & Surveys Ltd.	255
The Glidden Company Limited	256A
Gould-National Batteries of Canada Limited	259
W. R. Grace & Co. (CRYOVAC DIV.)	260
The Great Lakes Paper Co. Ltd.	262
The Griffith Laboratories Ltd.	263
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Interchem Canada Limited	288A & B
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International Cellulose Research Limited	291
International Cooperage Company of Canada Ltd. ..	292
International Harvesters Co. of Canada Ltd. ..	294A & B
The International Nickel Co. of Canada Ltd.	295A to C & E
ION Exchange (CANADA) Limited	298
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Kawneer Company Canada Limited	305
Kayson Plastics & Chemical Limited	306
Kearney-National (CANADA) Limited	307
Keeprite Products Limited	308A & B
George Kelk Limited	309
Kemp Products Limited	310
Kindred Industries Limited	311
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Lacal Industries Limited	317
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Lever Brothers Limited	331
Levy Industries Limited	332
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